

MICHAEL G. LAFOSSE • RICHARD L. ALEXANDER



Advanced Origami

An Artist's Guide to Folding Techniques and Paper



Advanced Techniques for Experienced Folders
15 Original and Challenging Projects

TUTTLE

CONTENTS

FOREWORD	4	PROJECTS	27
INTRODUCTION	5	MAKING YOUR OWN ORIGAMI PAPER	106
Advances in Origami	5	Tools and Materials	107
Origami as an Art Form	6	Pulp Preparation	107
About My Origami Designs	7	<i>Beating</i>	108
About This Book	9	Basic Papermaking Steps	109
TECHNIQUES	11	<i>Step 1: Coloring</i>	111
A Review of the Basics	11	<i>Step 2: Sheet Forming</i>	111
<i>Folding Paper Neatly</i>	11	<i>Step 3: Pressing</i>	113
<i>Reading Origami Diagrams</i>	12	<i>Step 4: Drying</i>	117
<i>Basic Folds</i>	12	<i>Step 5: The Finished Sheet</i>	119
Advanced Folds	12	Making Duo Paper	120
<i>Curved Folds</i>	12	PAPER PULP RECIPES	122
<i>Wet-Folding</i>	14	Paper Fibers and Beating Times	123
ABOUT PAPER	19	Three General Purpose Pulps	123
Paper Qualities	19	Satoshi Kamiya's 50/50 Blend	123
<i>Grain</i>	19	Robert Lang's Origami Insect Paper	124
<i>Paper Strength</i>	19	Cotton Blend	124
<i>Fiber Choice and Blends</i>	20	RESOURCES	125
Choosing the Right Paper	20	ABOUT THE AUTHORS	126
Customizing Commercial Papers	22	ACKNOWLEDGMENTS	127
<i>Back-Coating Tissue to Foil</i>	23		
<i>Adding Surface Color to a Sheet of Paper</i>	25		

PROJECTS



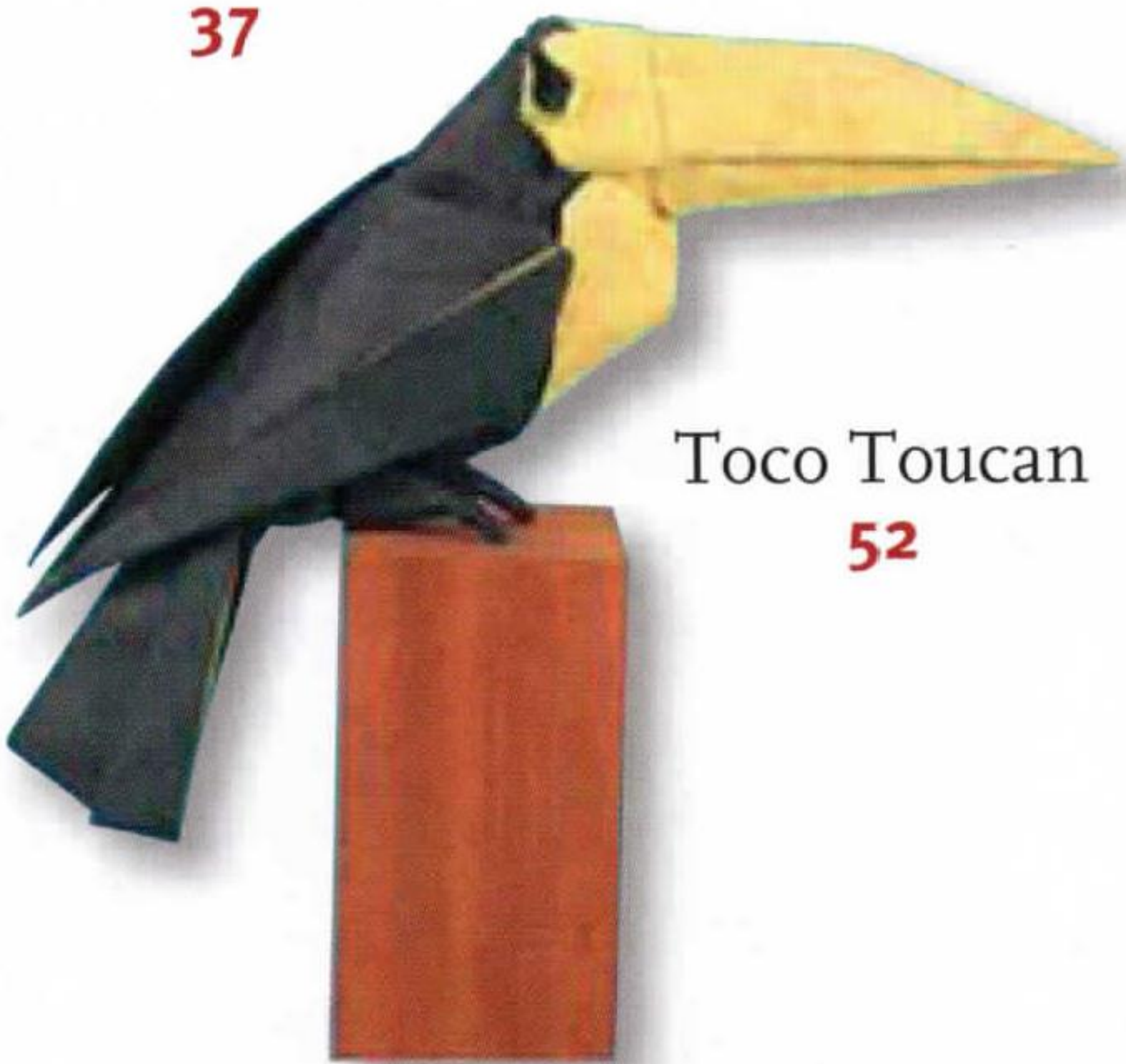
Koi
37



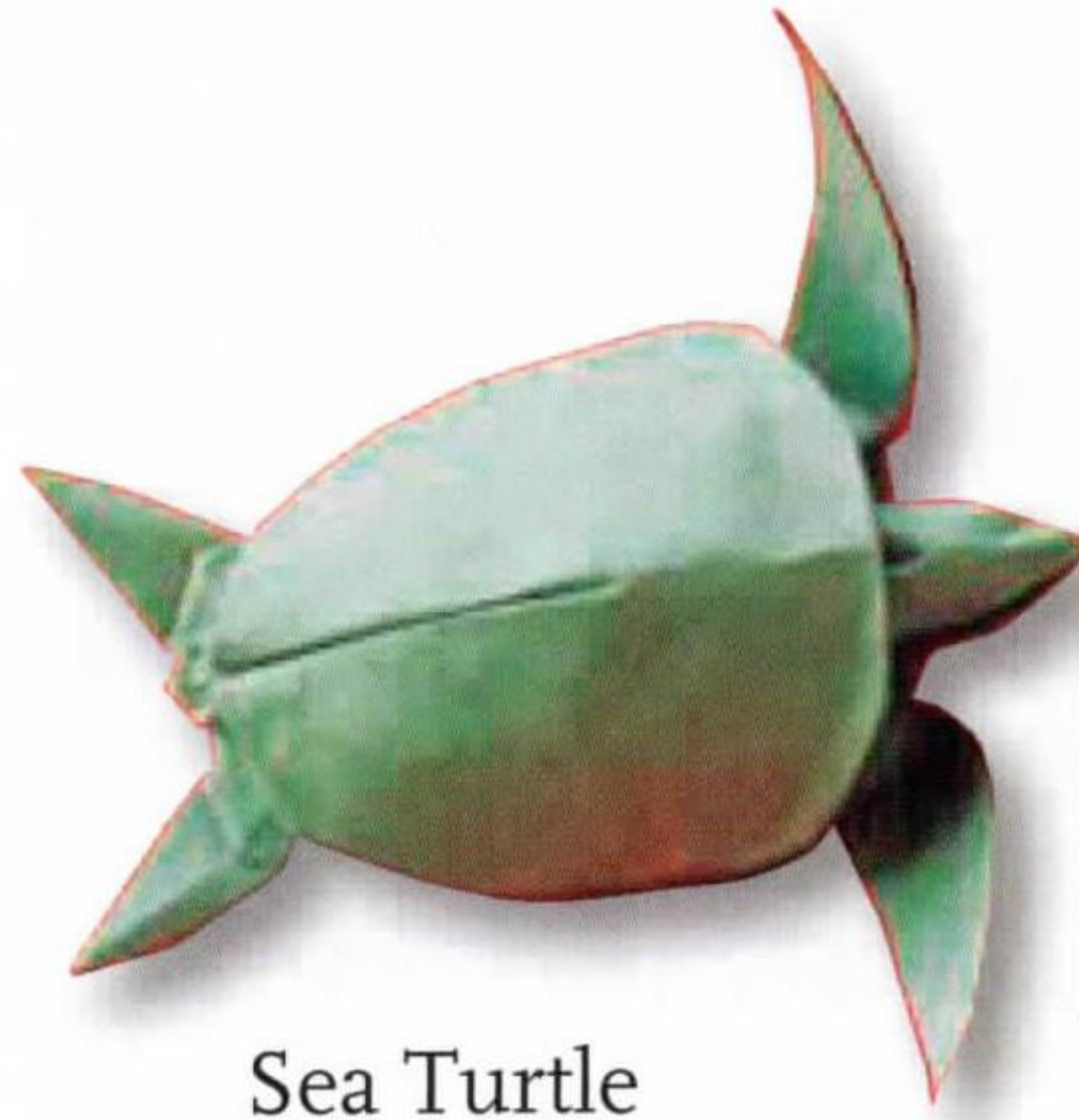
North American Cardinal
28



Origamido Butterfly
33



Toco Toucan
52



Sea Turtle
41



Squirrel
46



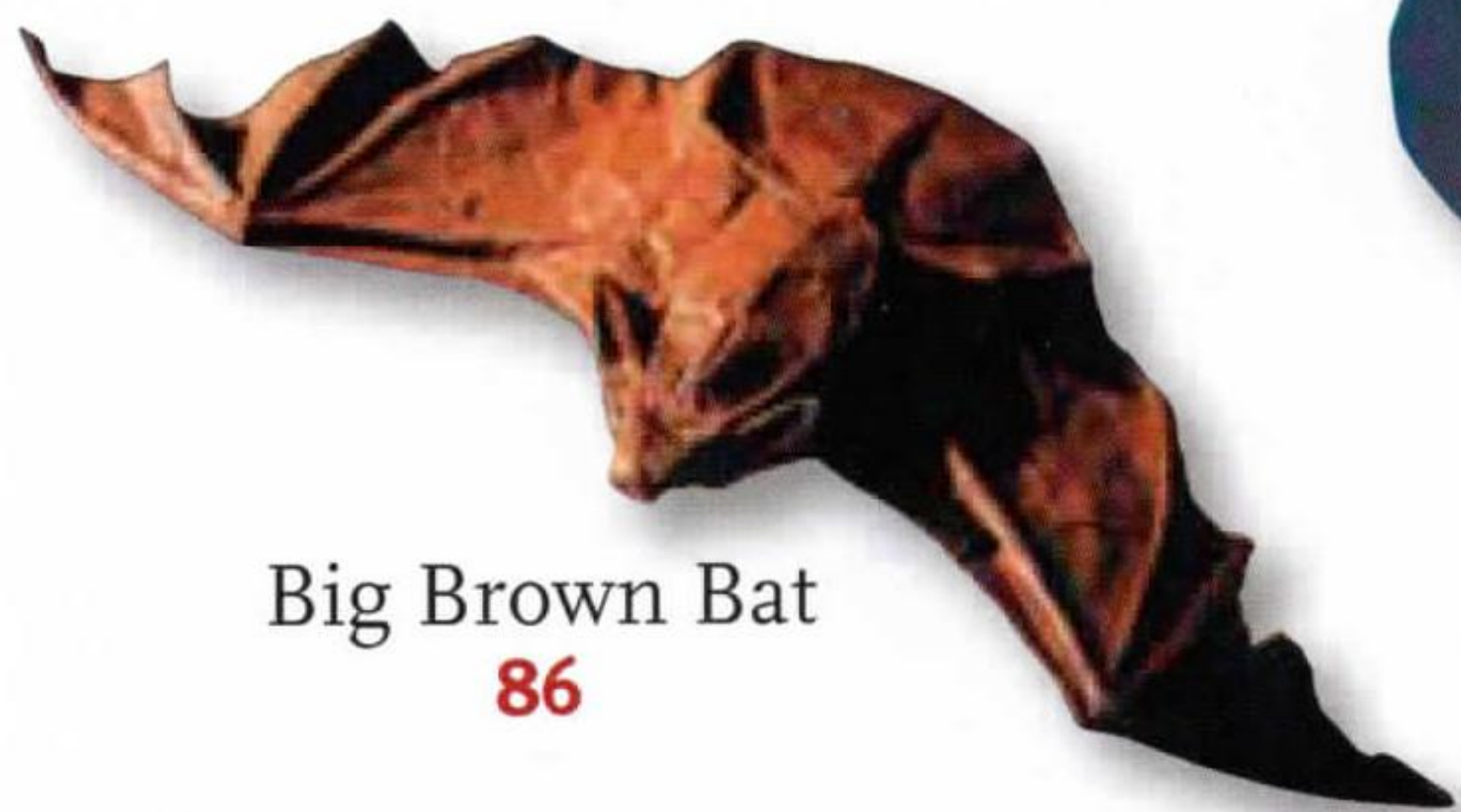
Goldfish
67



Ruby-Throated Hummingbird
62



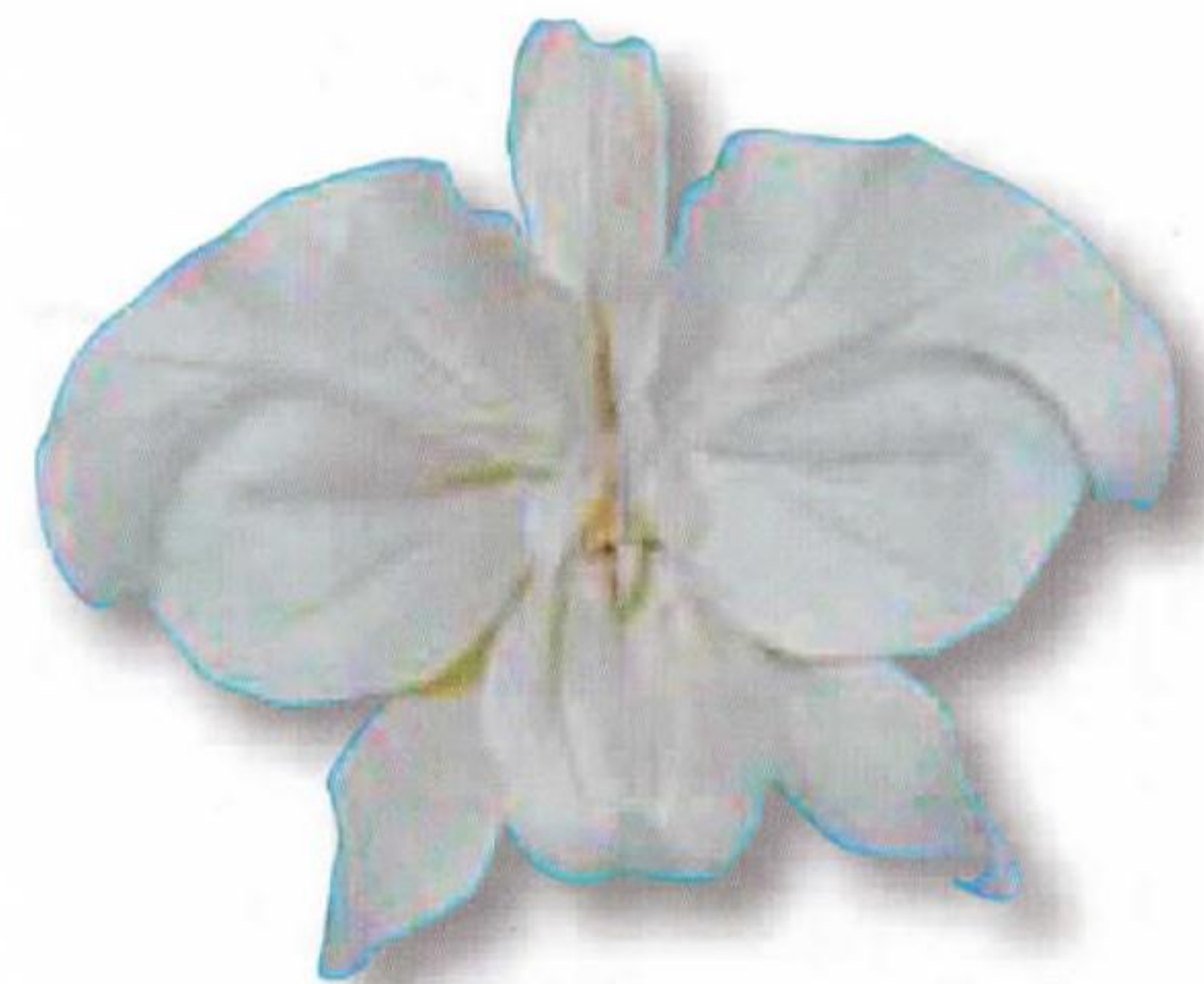
Frog
58



Big Brown Bat
86



Horseshoe Crab
71



Cattleya Orchid
74



Praying Mantis
93



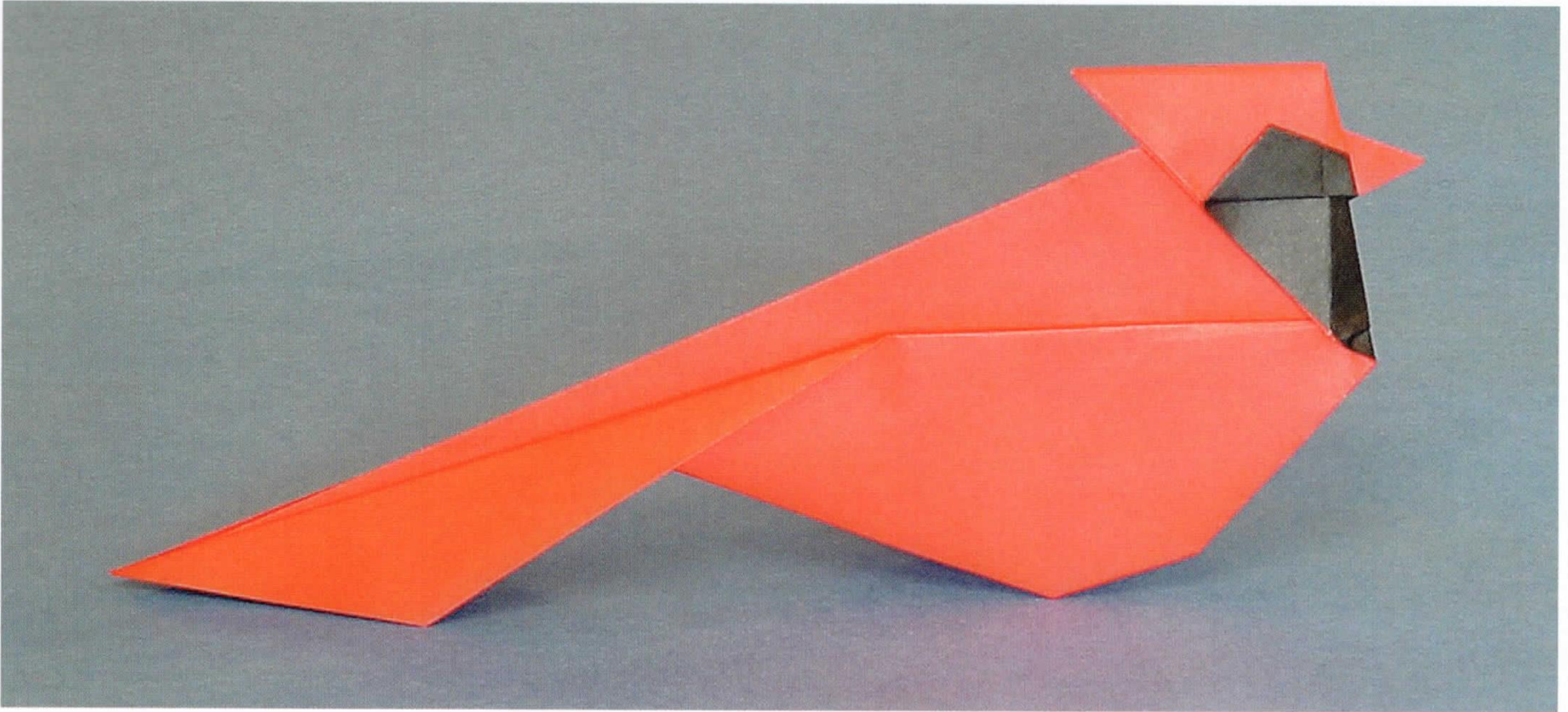
Happy Good-Luck Bat
81



Panther Mask
102

north american cardinal

Designed by Michael G. LaFosse

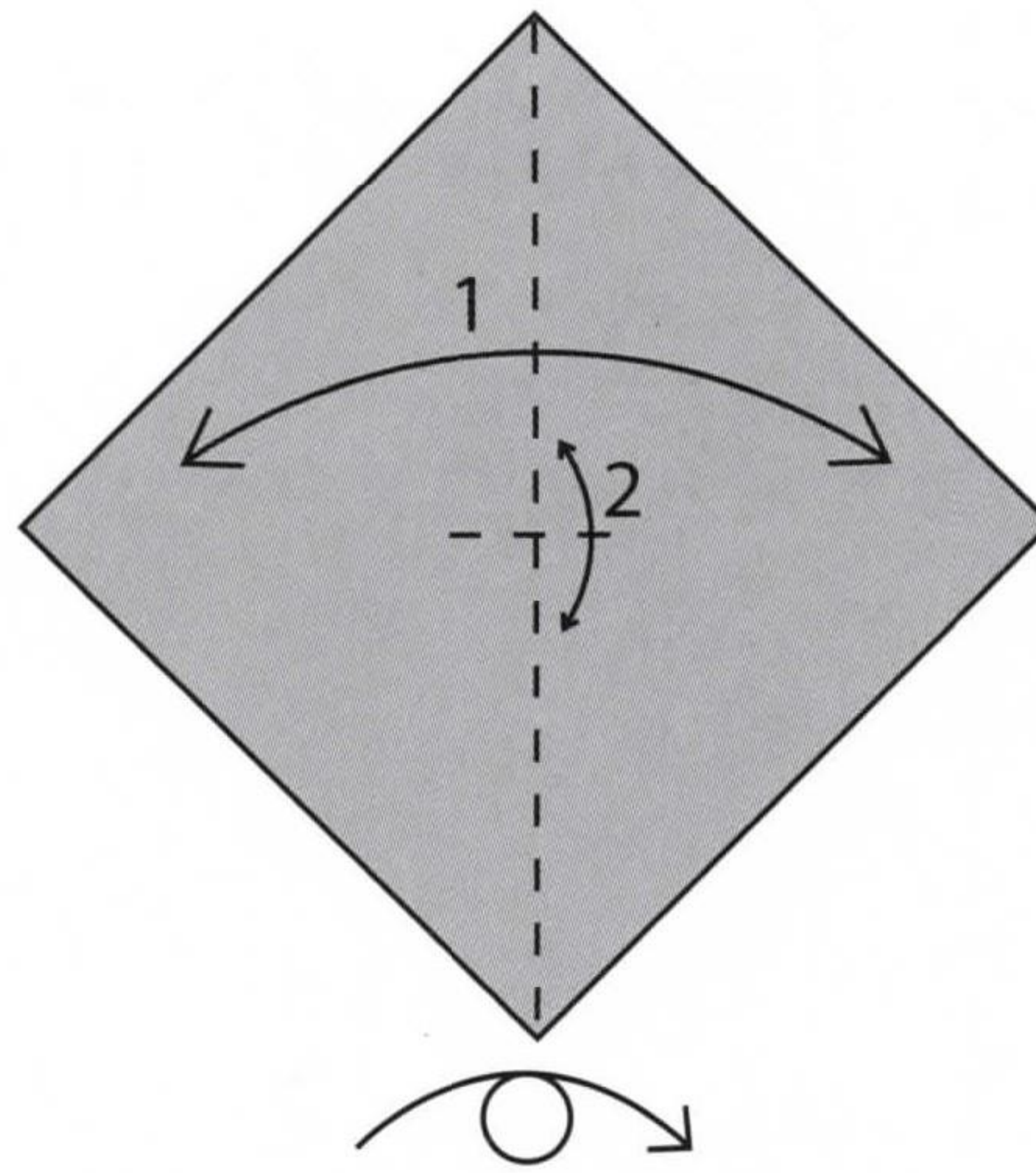


This crested, brightly colored finch is a favorite that every person putting out a backyard bird feeder hopes to attract. No wonder seven states have chosen it as their state bird. This model shows a modern design using the older origami style of creating flat profiles of familiar objects. The beautiful simplicity, harmony of shapes and proportions makes this model elegant, yet deceptively sophisticated. The model also reduces the subject to a minimalist abstraction. The design takes advantage of two-toned, or duo, paper that is all red on one side, all black on the other. The folding process or sequence is direct, economical, interesting and enjoyable.

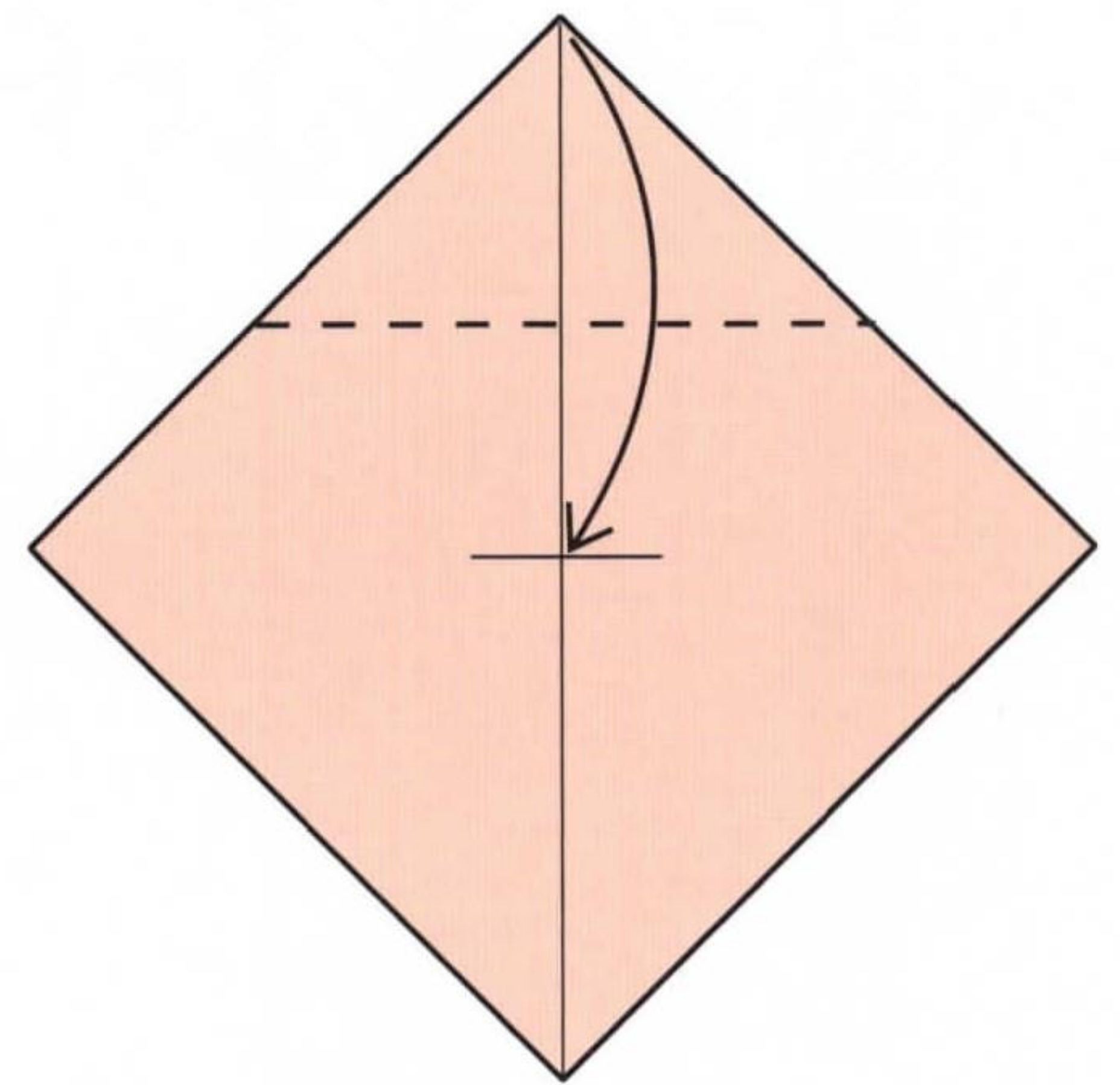
Even as a youngster, I was smitten with the cardinal. I remember begging my parents for a plastic cardinal model kit that I could assemble and paint by myself. They did not buy it for me, but shortly afterward Santa Claus did. I tried for several years to design a fitting origami rendition of my favorite bird but did not succeed until Richard asked me to determine the land marks on my Mourning Dove so that he could teach it to beginners at the Origamido Studio. Although I never finished land marking the Mourning Dove, during the process I did discover the potential to reshape the bird's head and to explore the opportunities to accomplish a color change. My vision for the origami cardinal years ago was for a fully three-dimensional bird, just like the plastic model that I had glued together and painted as a child. The resulting flat fold is quite a departure, yet every bit as satisfying to me because it has a pleasing geometry and harmony that gels. Like a wonderful poem that everybody can recite and understand, it has an honest quality in its simplicity, even though it is folded flat.

PAPER SUGGESTIONS

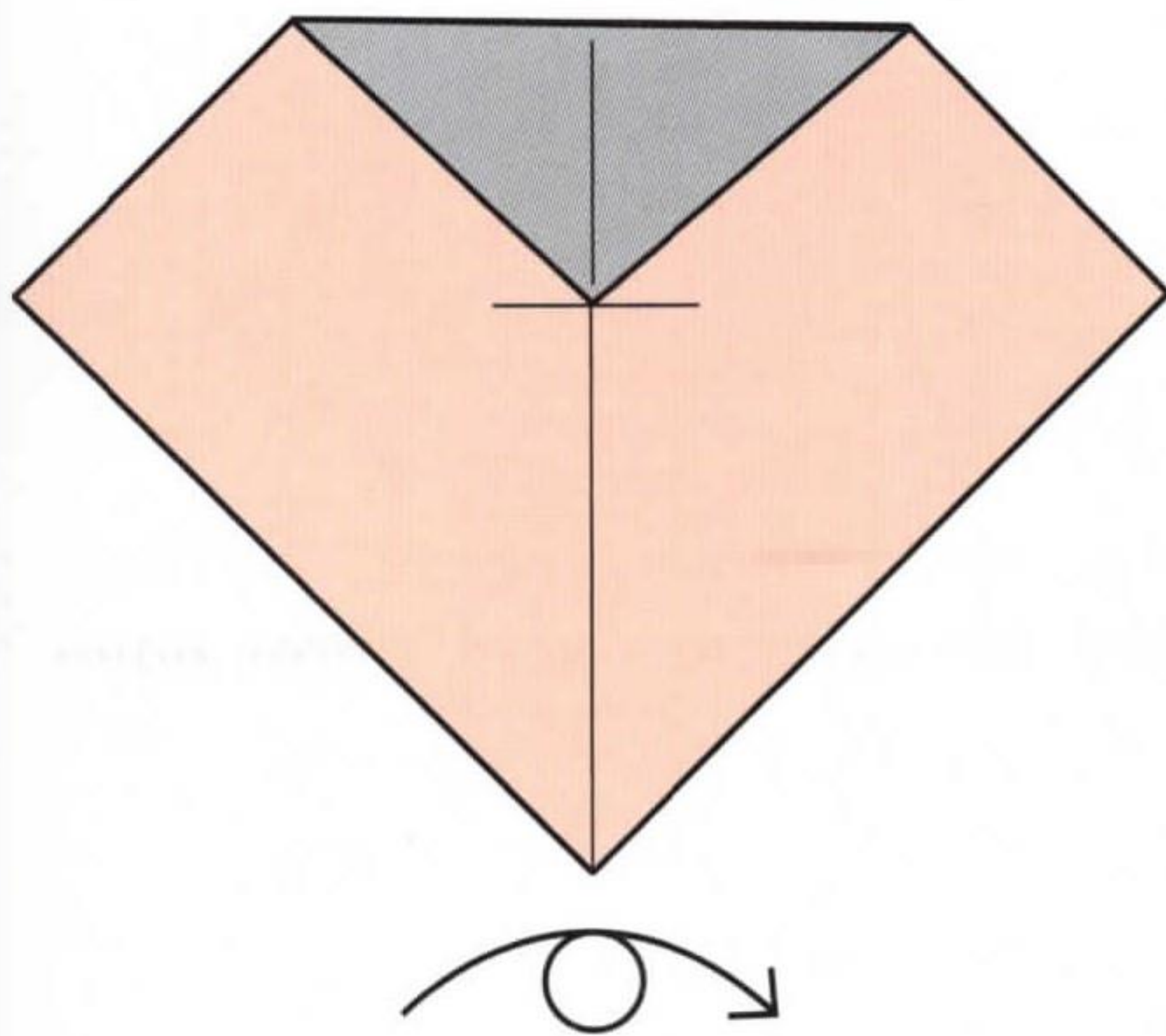
The paper must be red on one side and black on the other. This so-called “duo” origami paper is generally available in standard $5\frac{7}{8}$ -inch (15-cm) squares (yielding a $5\frac{1}{2}$ -inch [14-cm] bird) and $9\frac{3}{4}$ -inch (24.7-cm) squares (yielding a 9-inch [22.8-cm] bird). Some popular packs of assorted duo color origami papers include a couple of sheets of red/black paper. You can also make your own duo paper using the techniques described in this book. For best results, swipe a little moisture along the diagonal before you make the first fold.



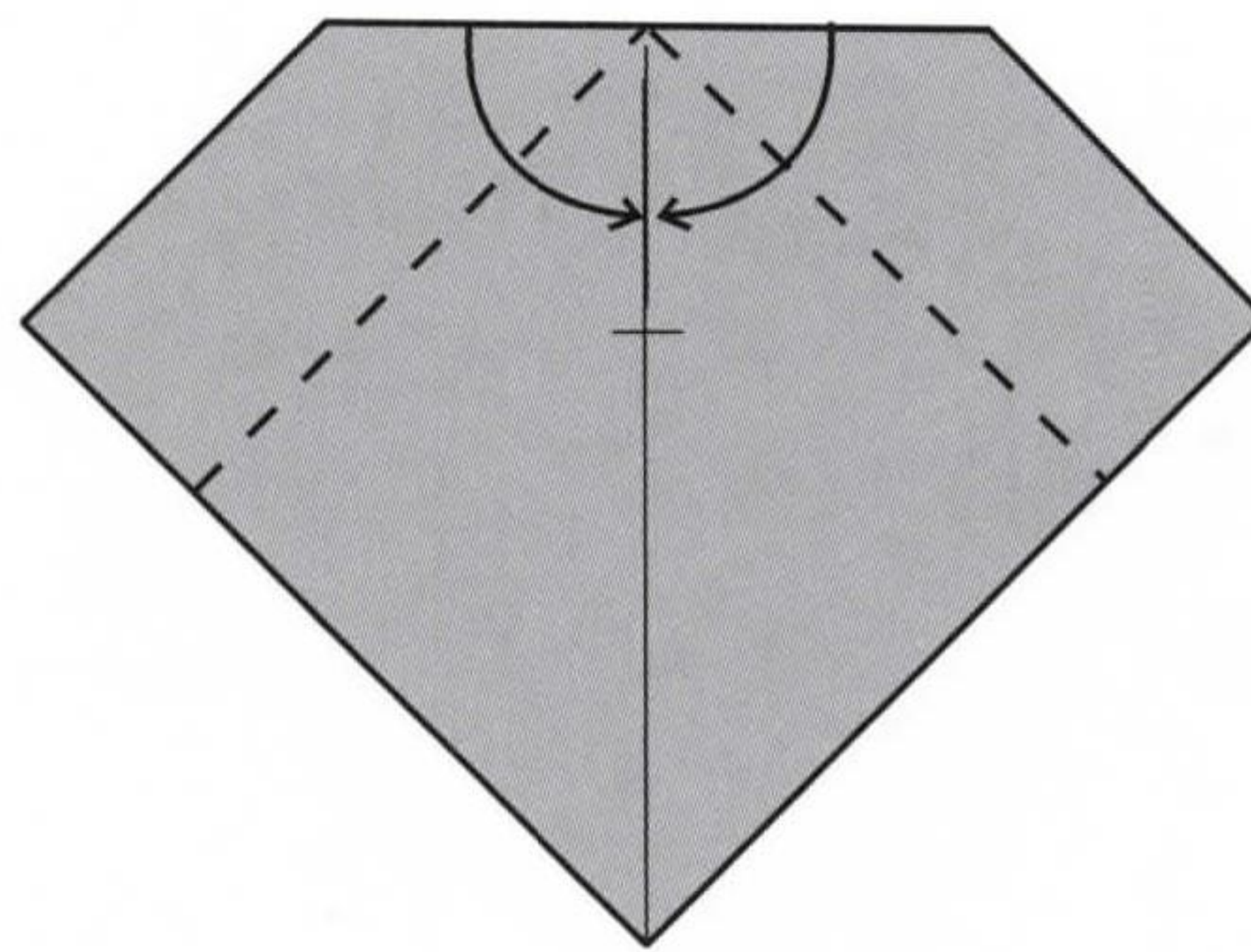
1. Begin with the black side up. Fold in half, corner to corner. Unfold. Make a pinch mark halfway up the crease to mark the center of the paper. Turn over.



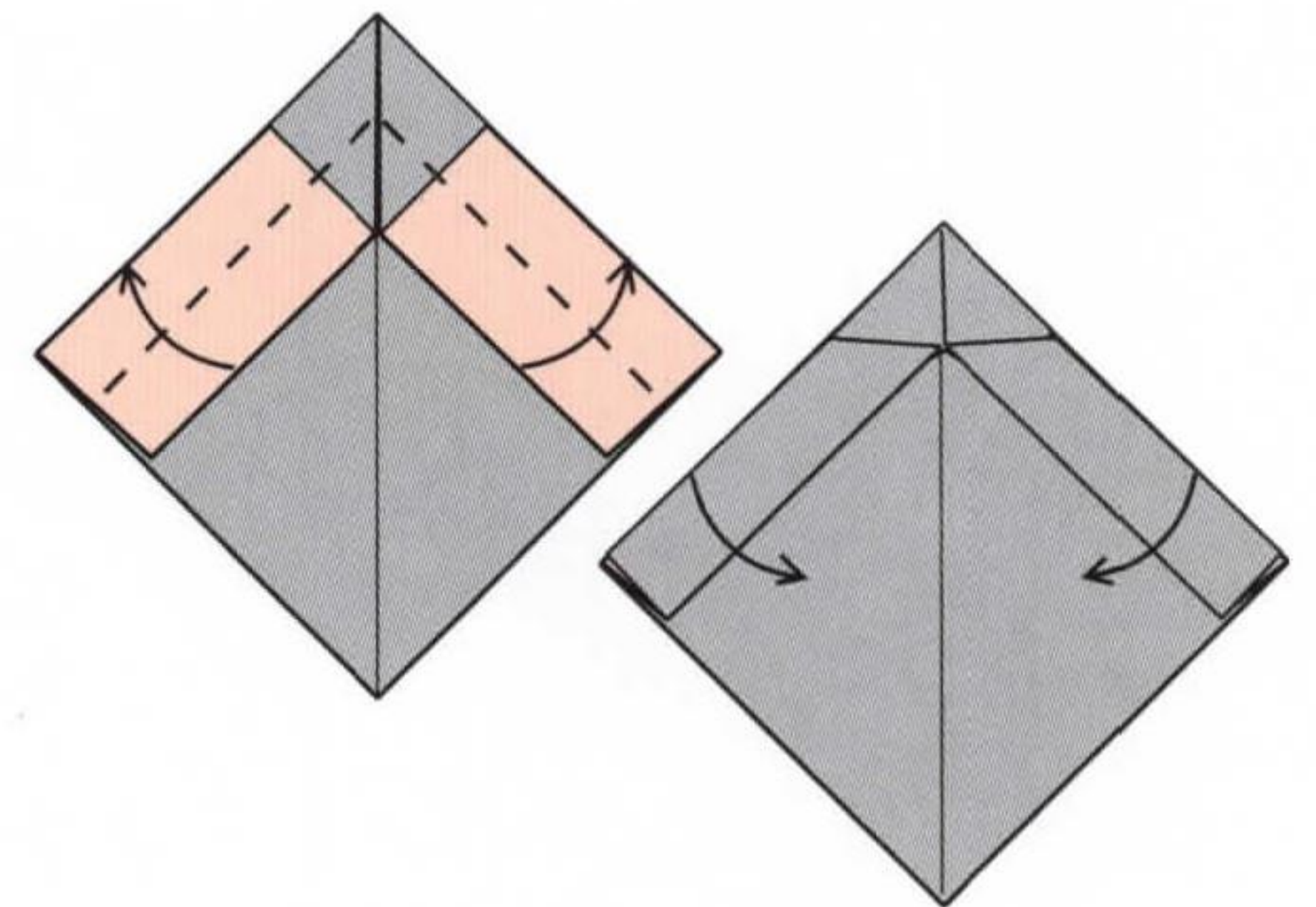
2. Fold one corner to the center. Be sure to use a corner that has a crease line running through it.



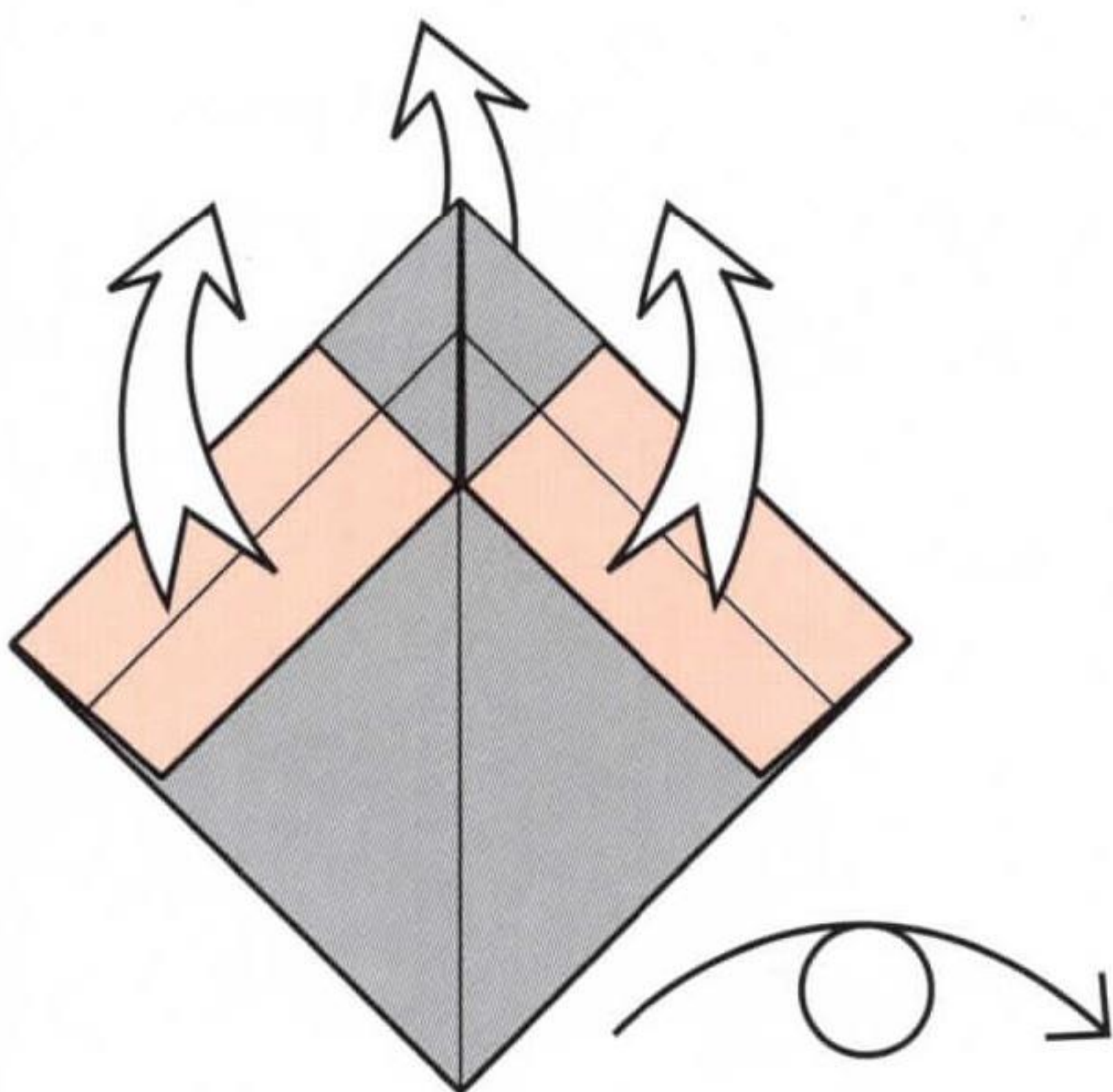
3. Turn over, left to right.



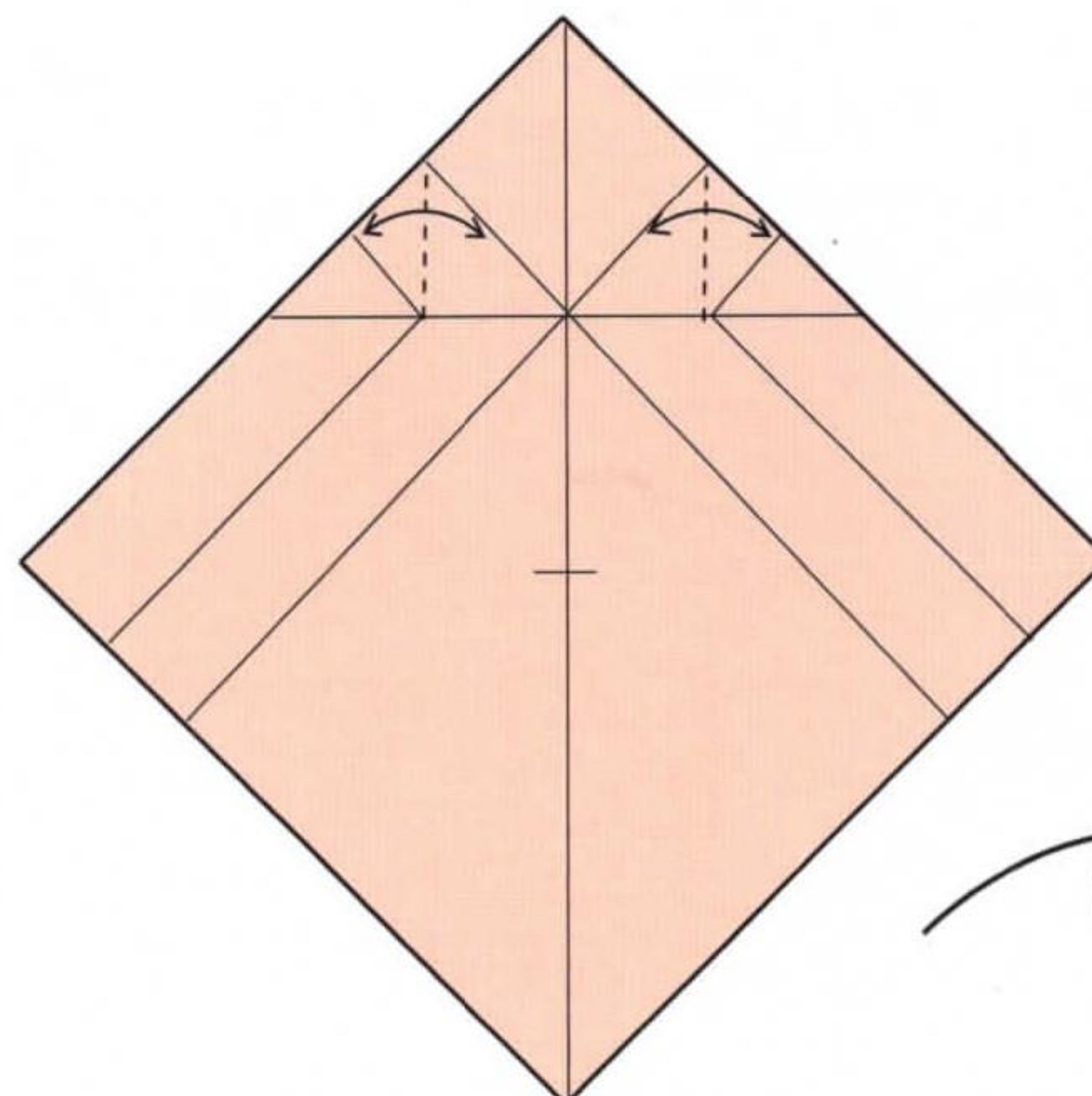
4. Fold each half of the folded edge to meet at the crease.



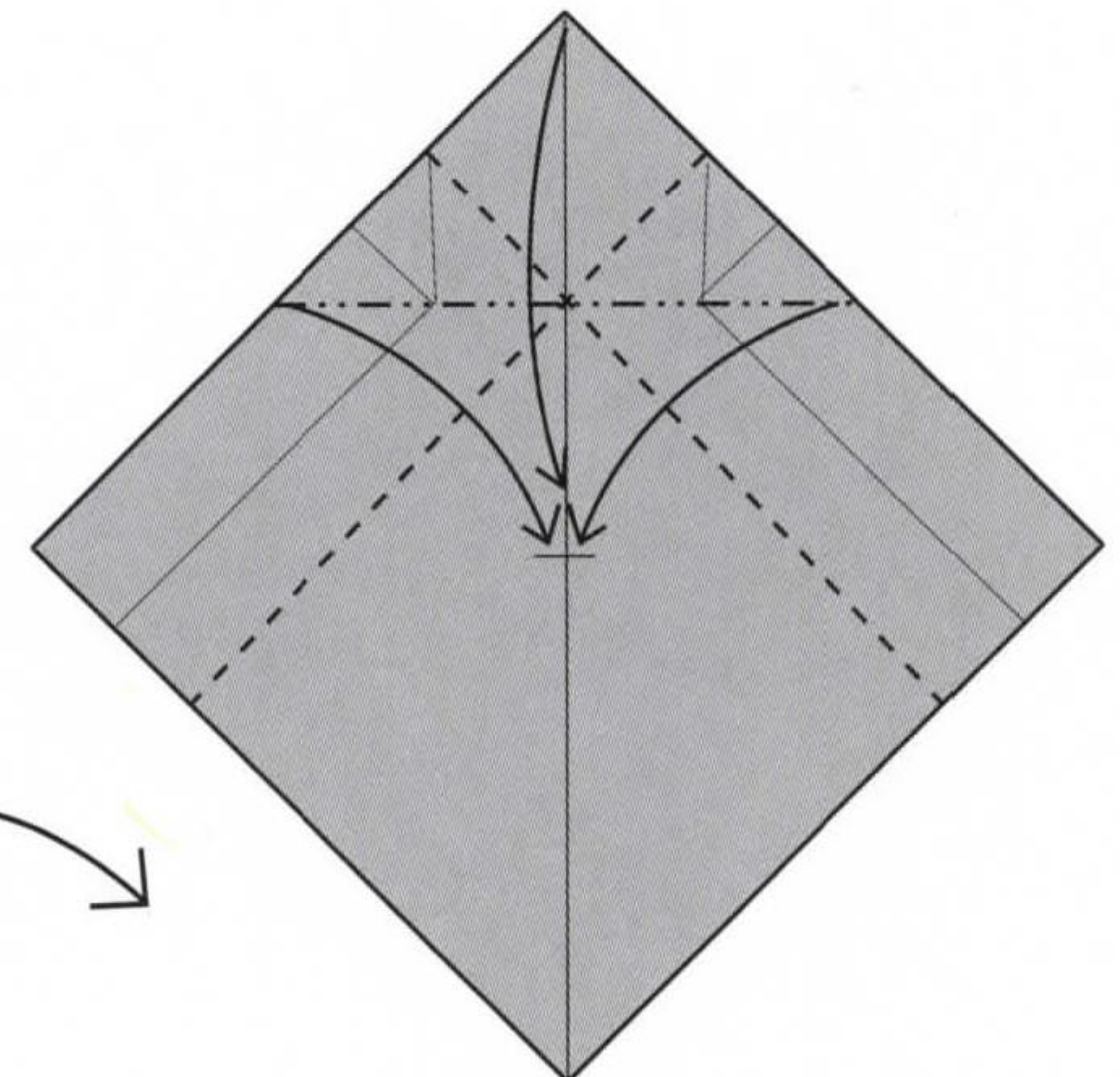
5. Fold the free red edges to the outside folded red edges. Unfold.



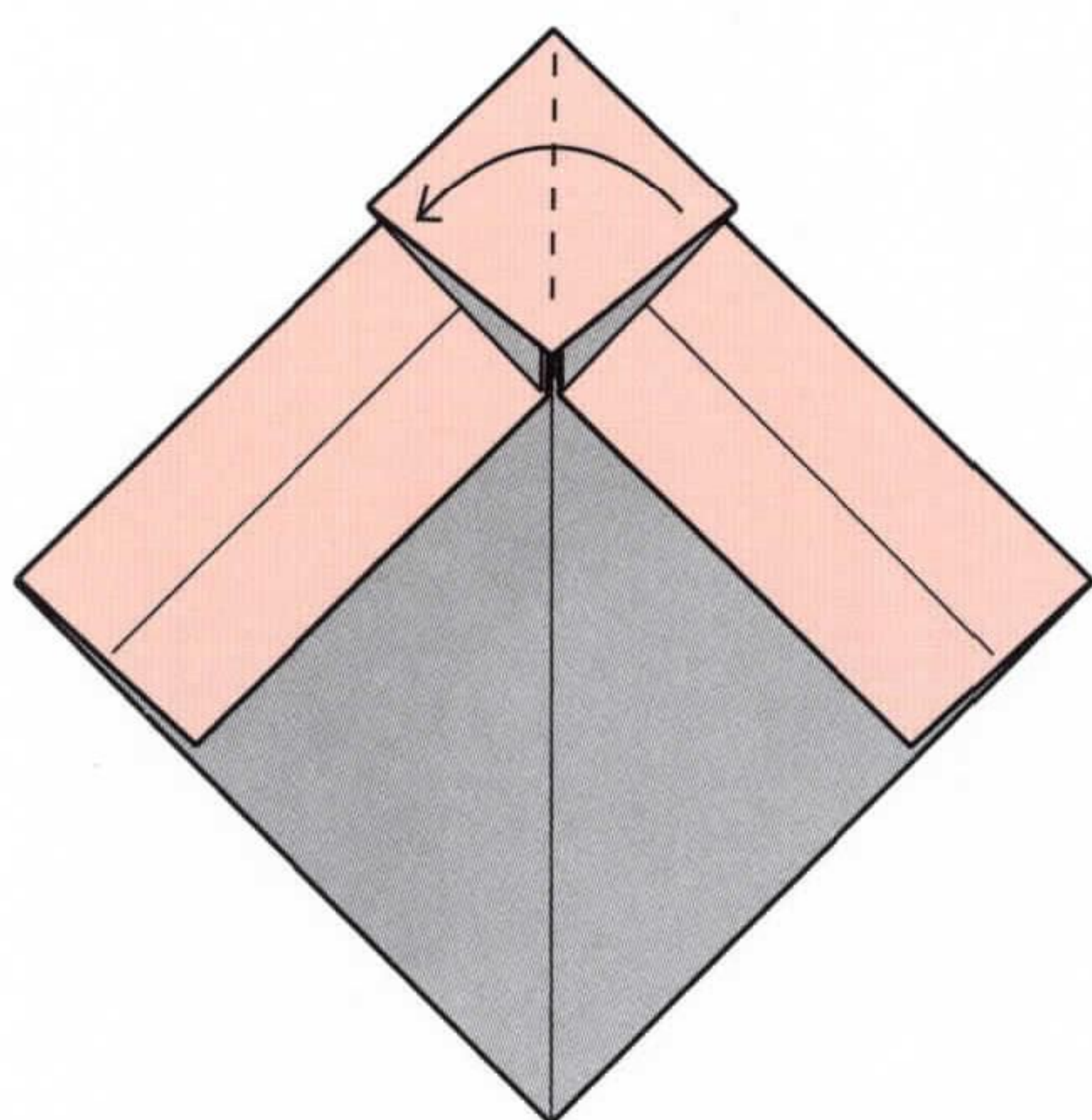
6. Open the paper completely and flip horizontally, red side up.



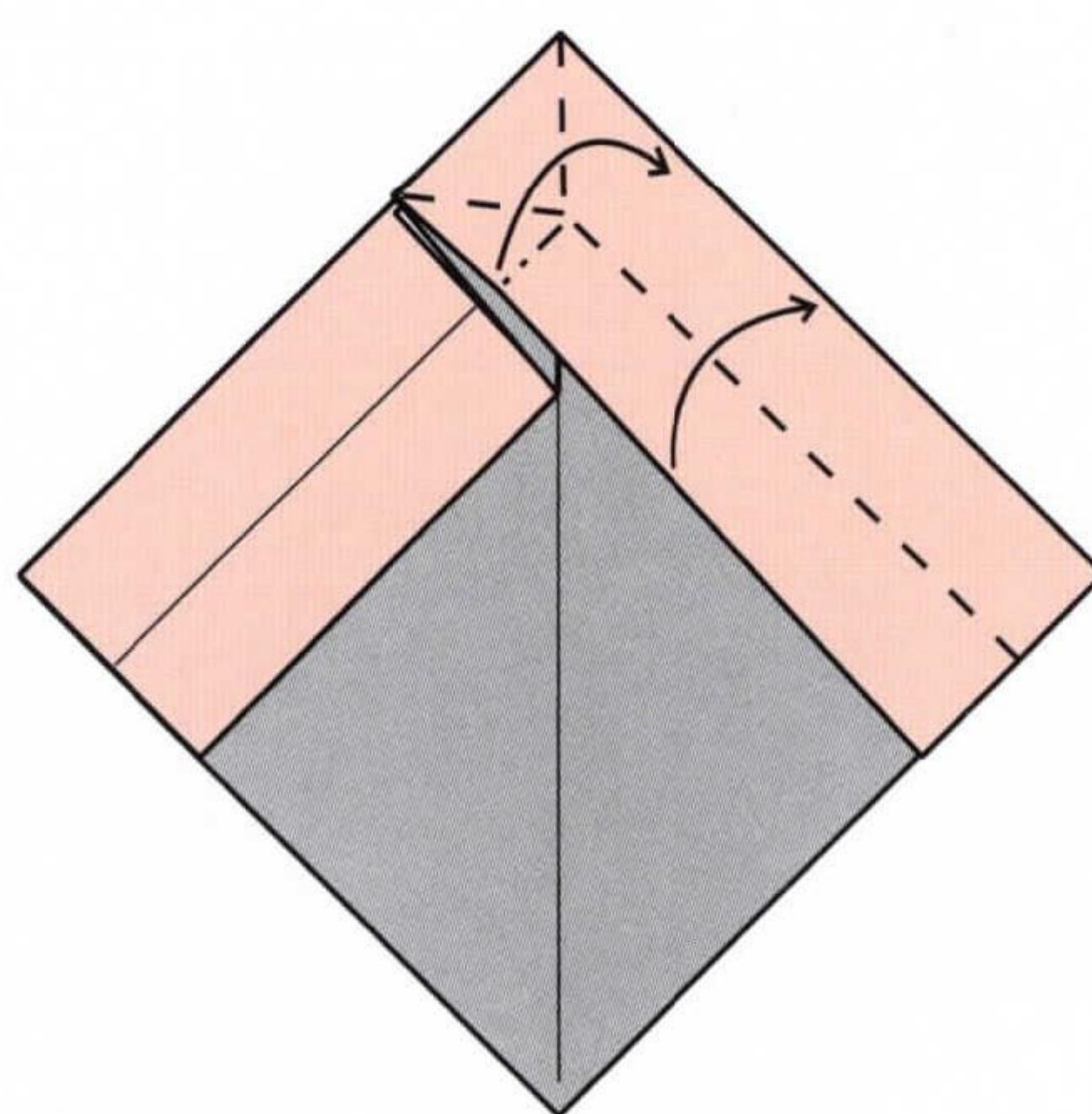
7. Perform the indicated valley creases. Carefully note their placement. Turn the paper over horizontally, black side up.



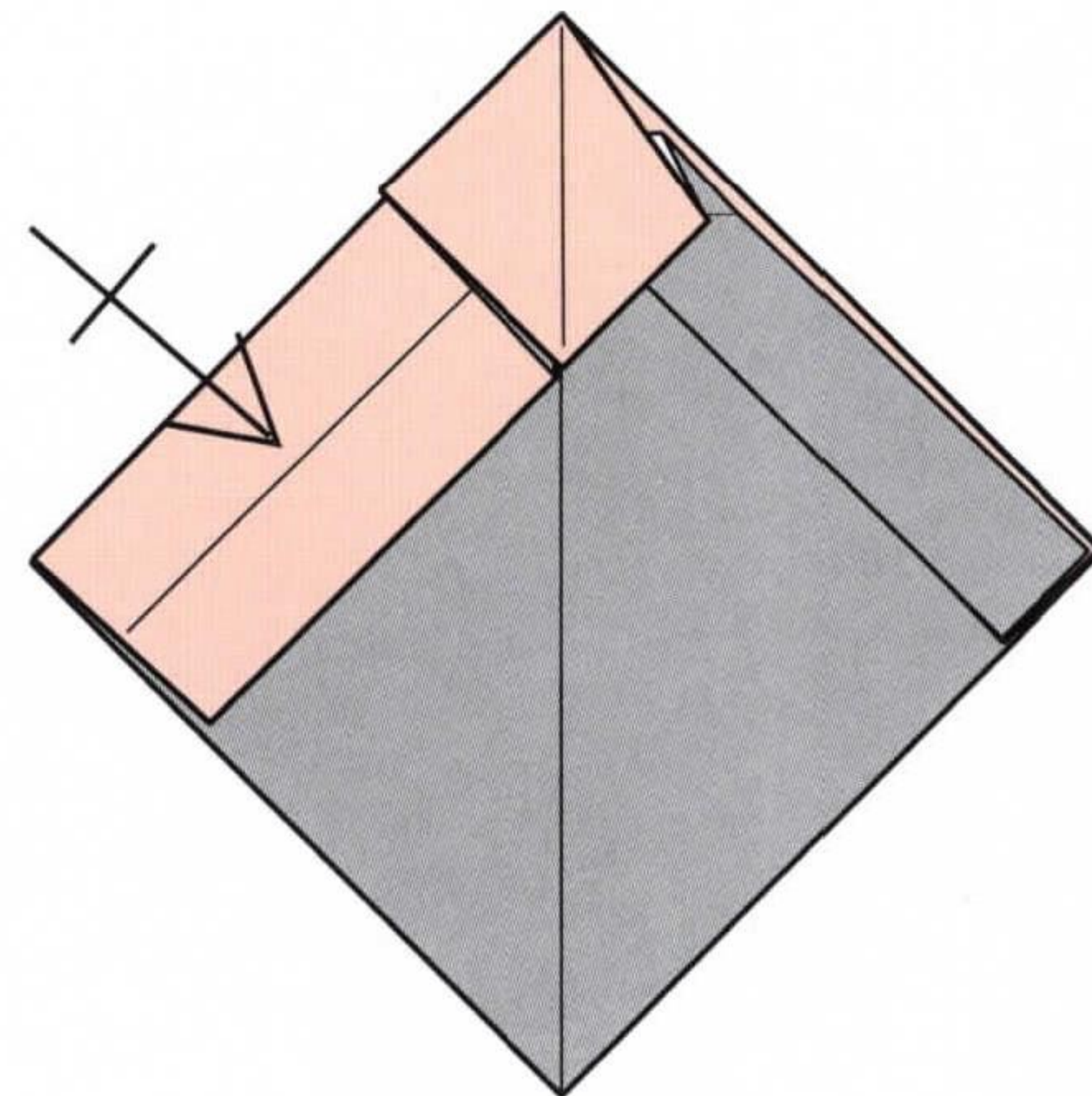
8. Use the existing mountain and valley creases to fold the top corner and edges down.



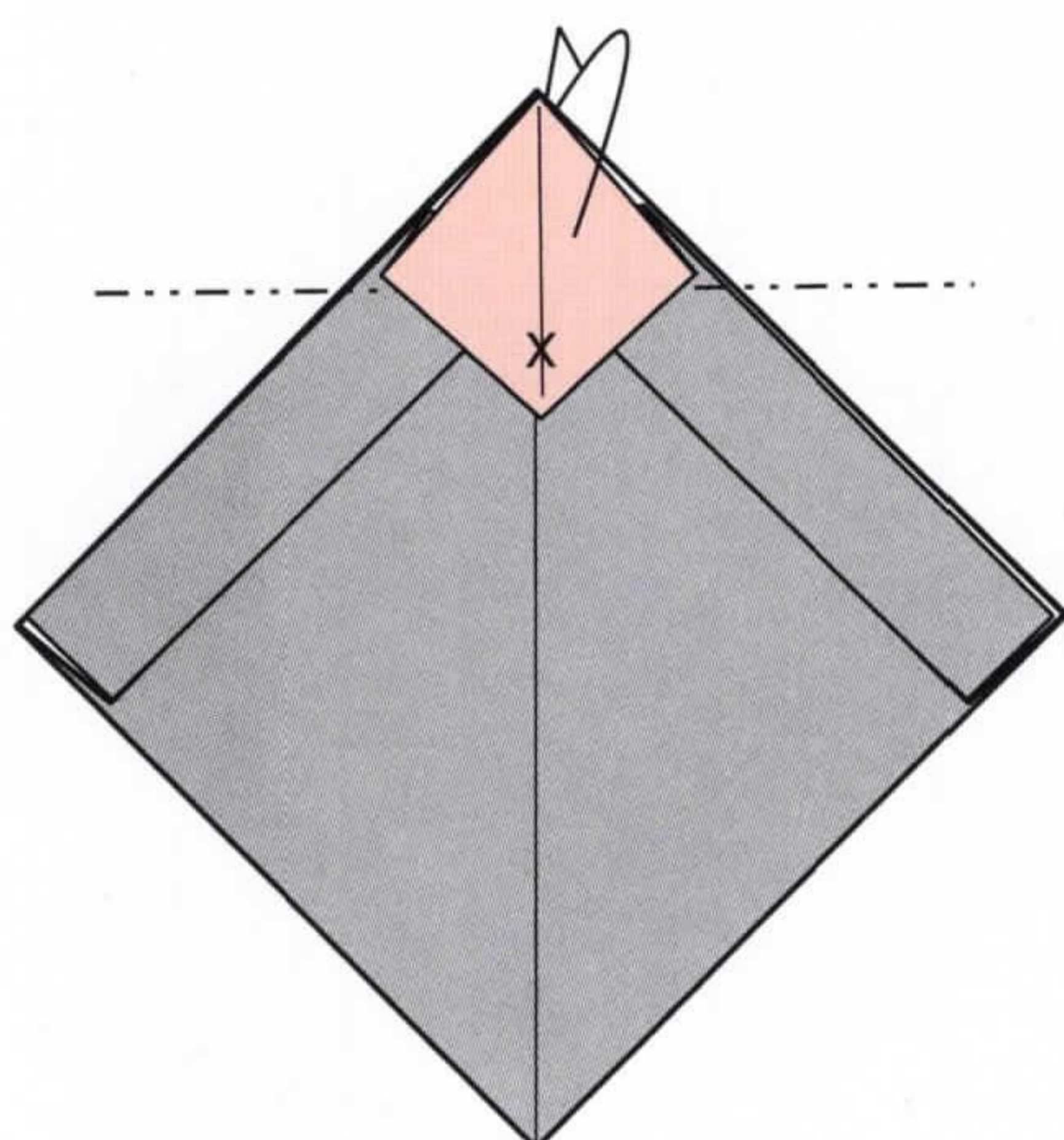
9. Your paper should look like this. Fold the top right corner to the left.



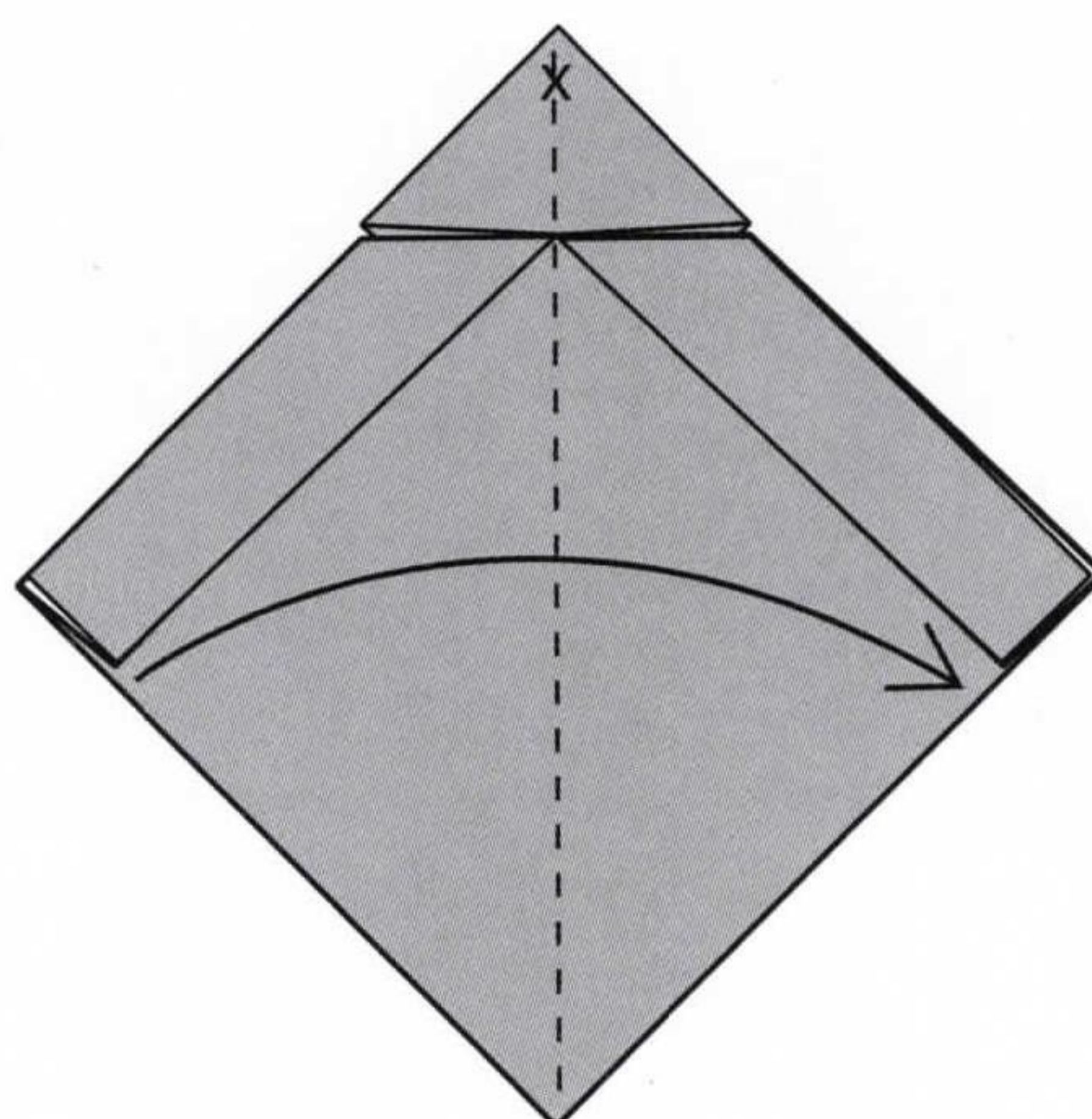
10. Move the long cut red edge to the outside red folded edge. Inside-reverse-fold the upper portion of this layer as you return the corner to the right. The small crease installed in step 7 will aid this maneuver.



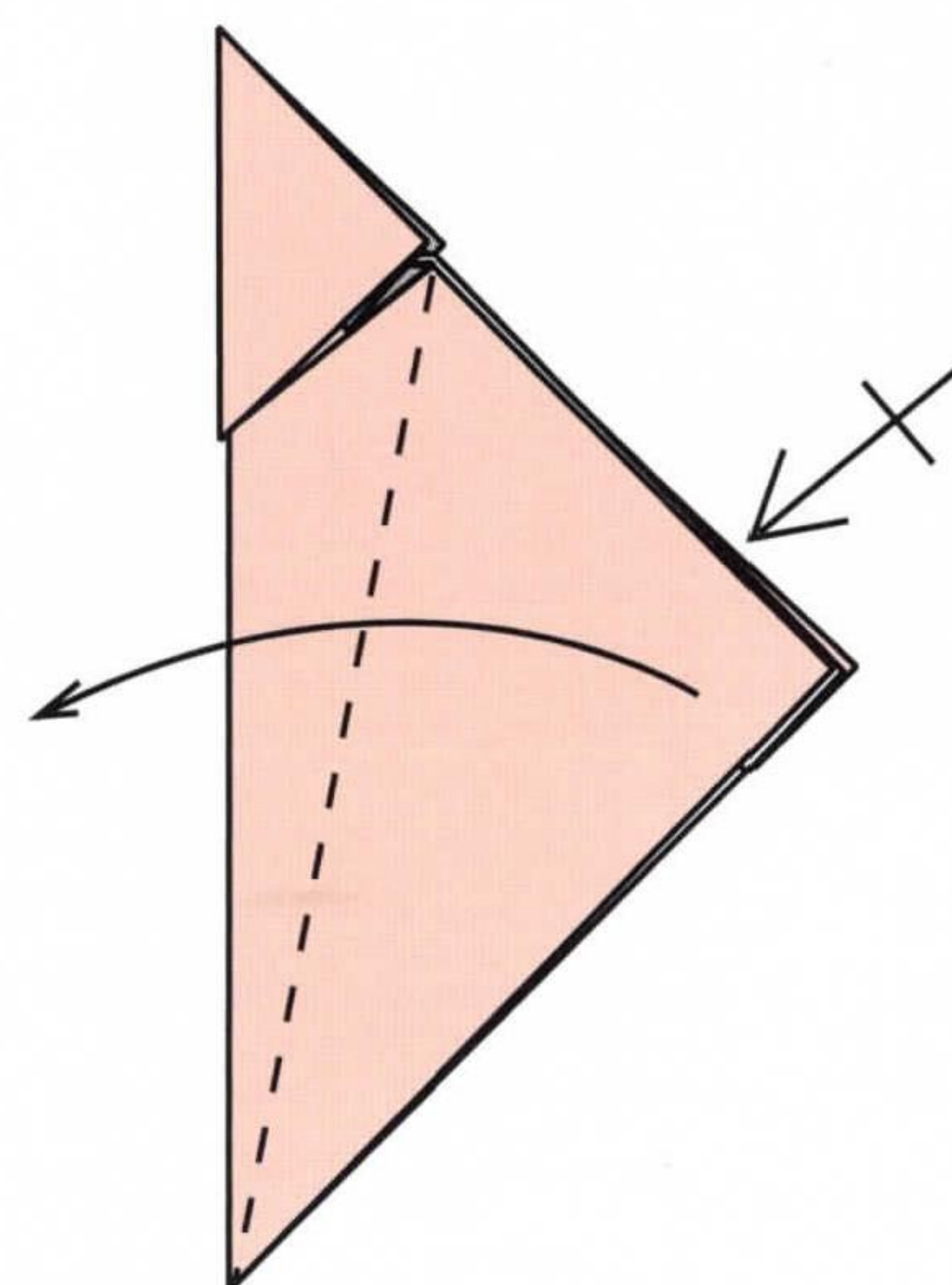
11. Repeat on the other side.



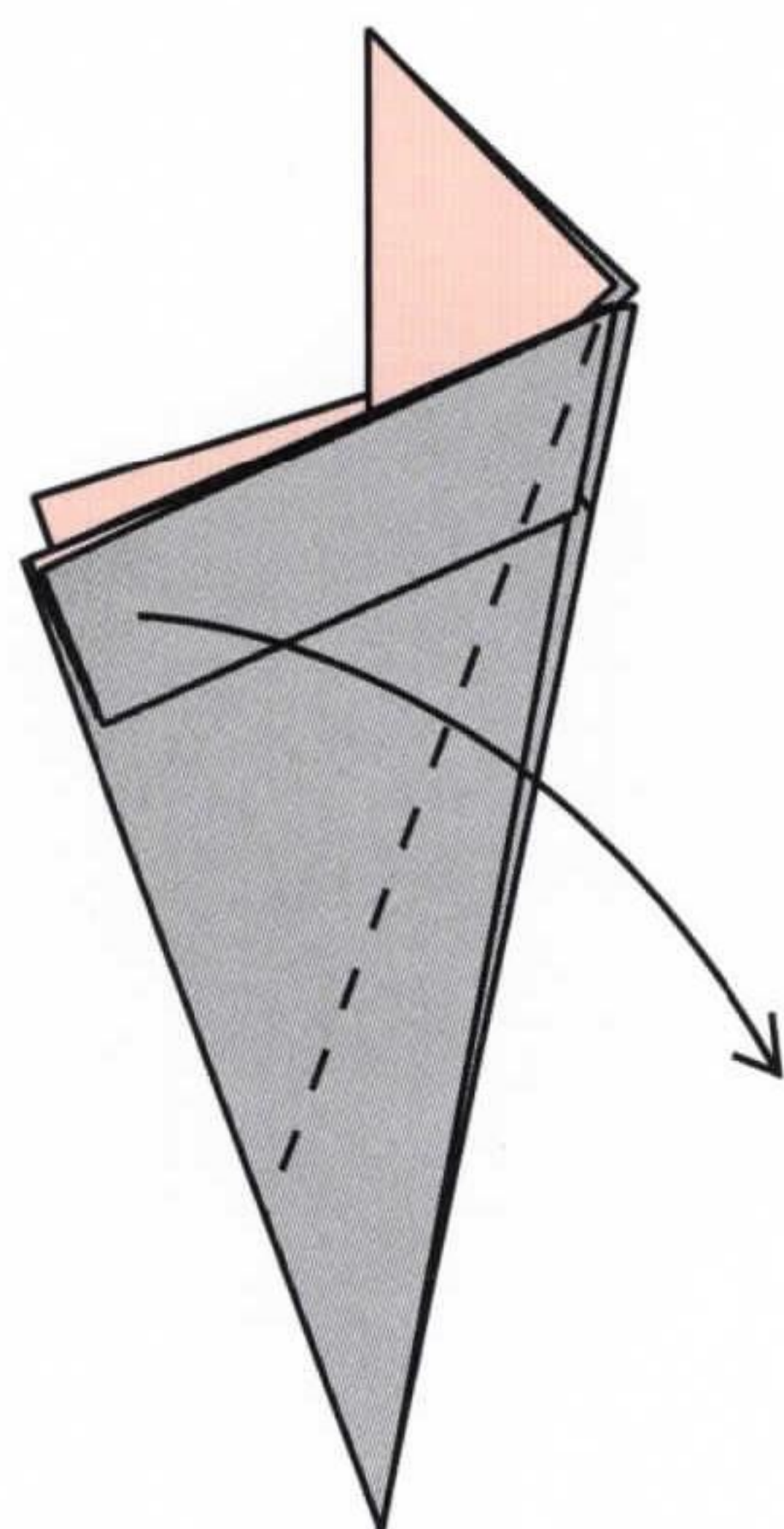
12. Fold the top corner behind. Watch the "X" spot! You are actually toggling the red diamond upside down and over to the other side. This will be the head.



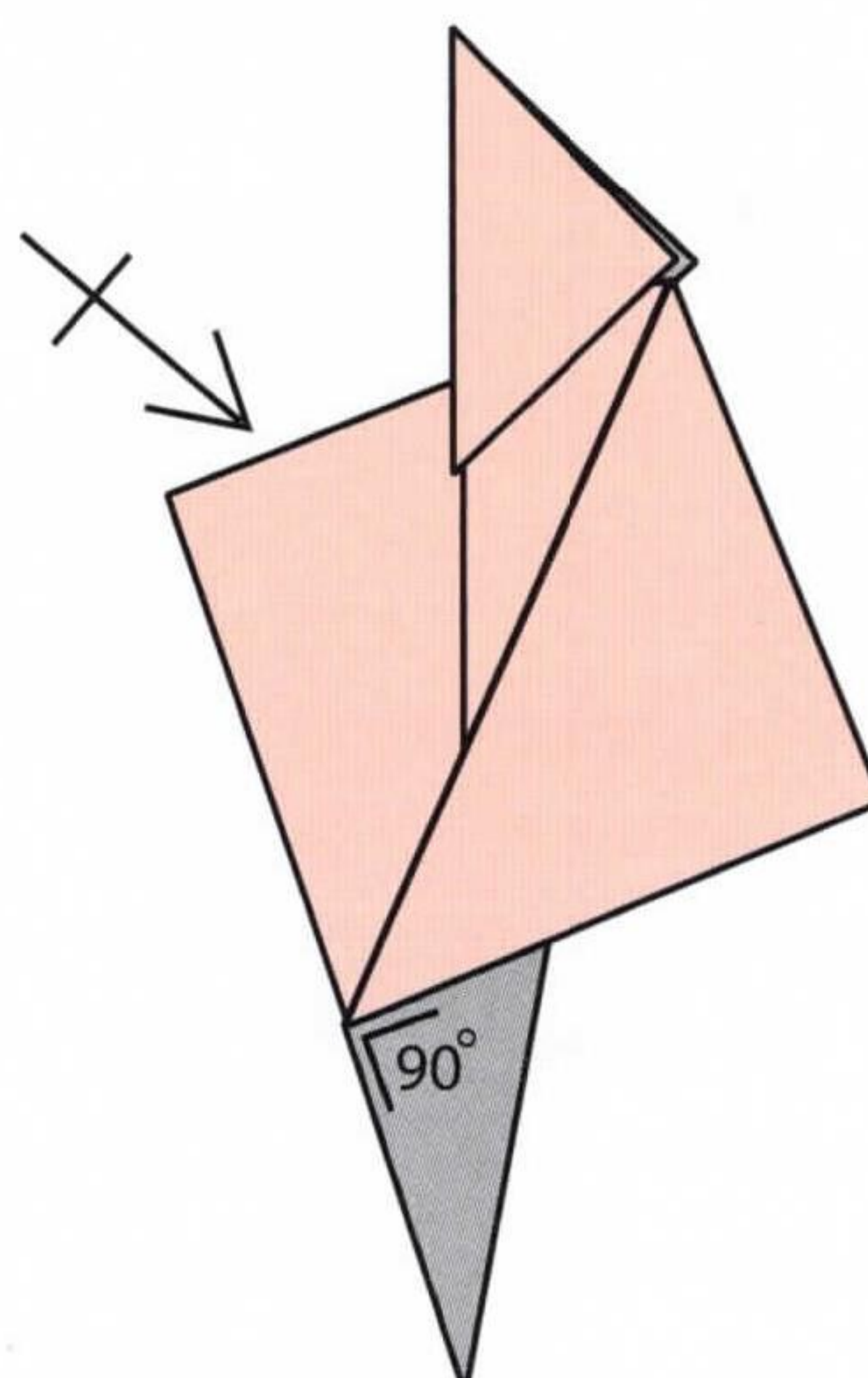
13. Fold in half.



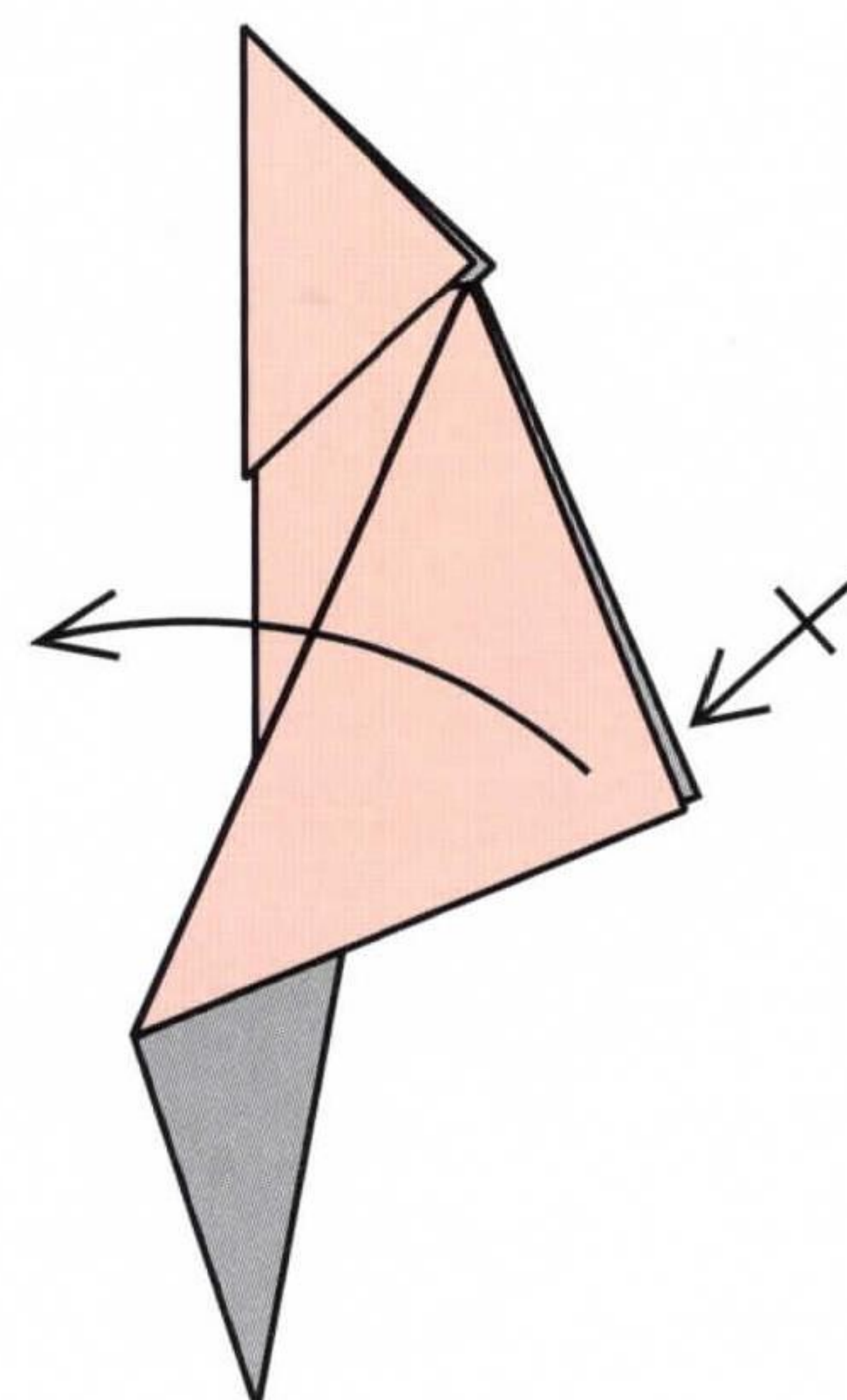
14. Fold the corner to the left. Repeat behind.



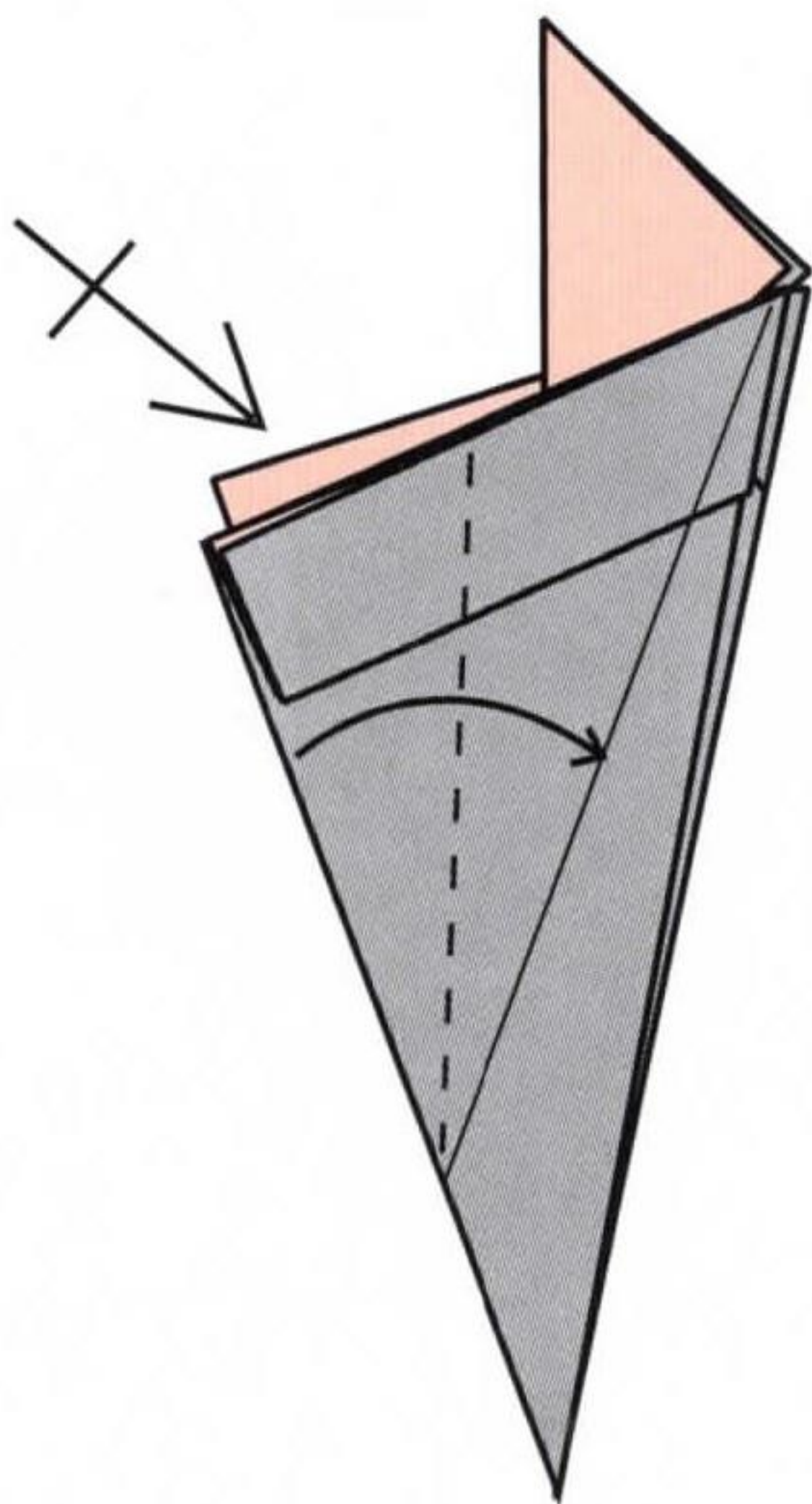
15. Fold to the right. Look ahead at step 16 and notice the 90-degree angle that is formed when the paper is properly placed.



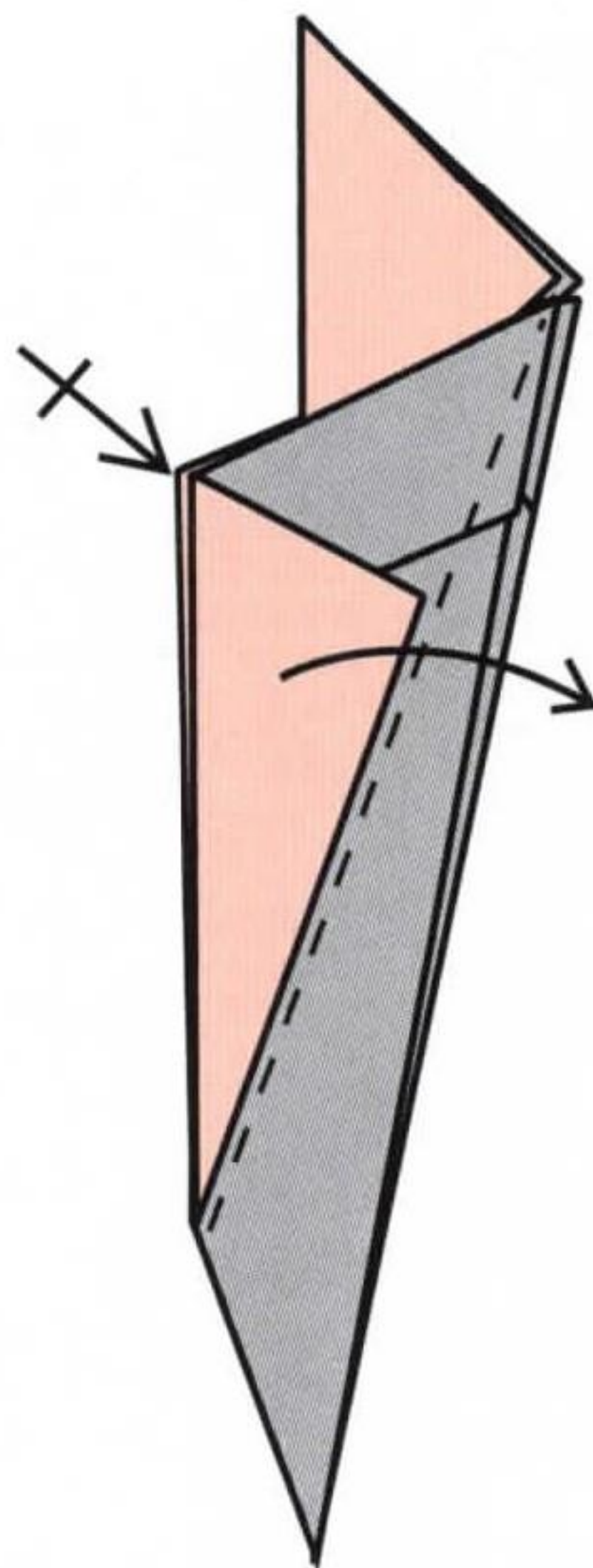
16. Repeat behind.



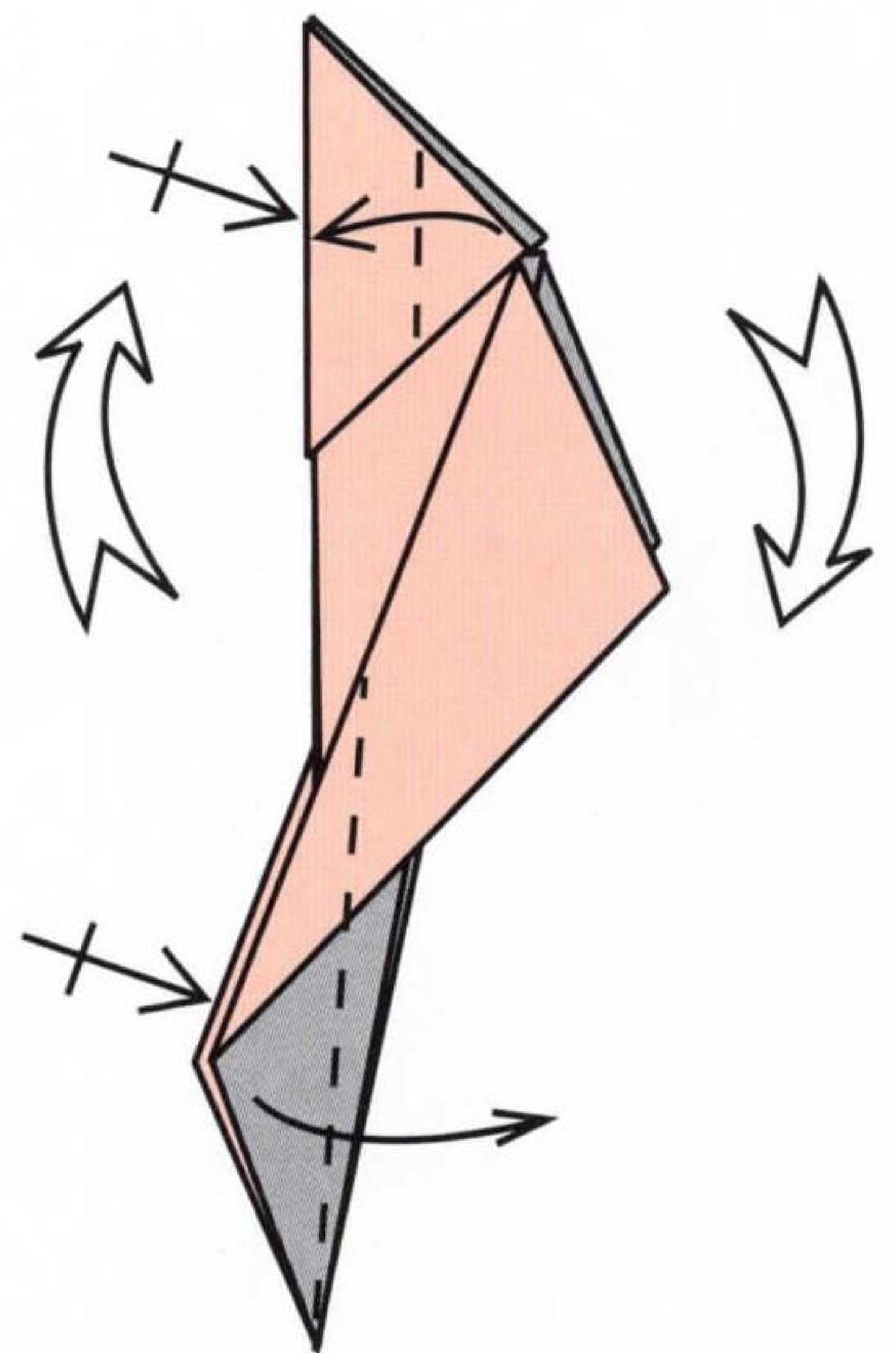
17. Unfold, front and back.



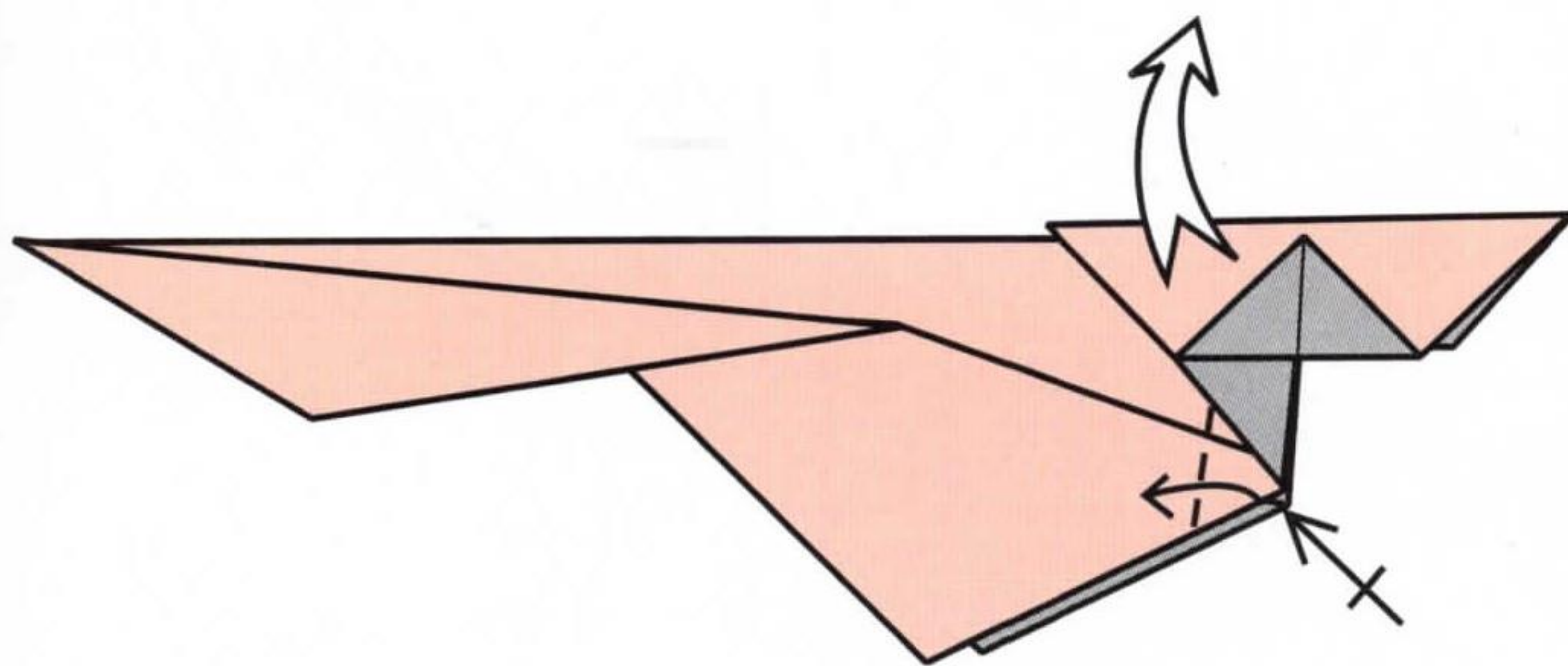
18. Fold the cut edge to the crease.
Repeat behind.



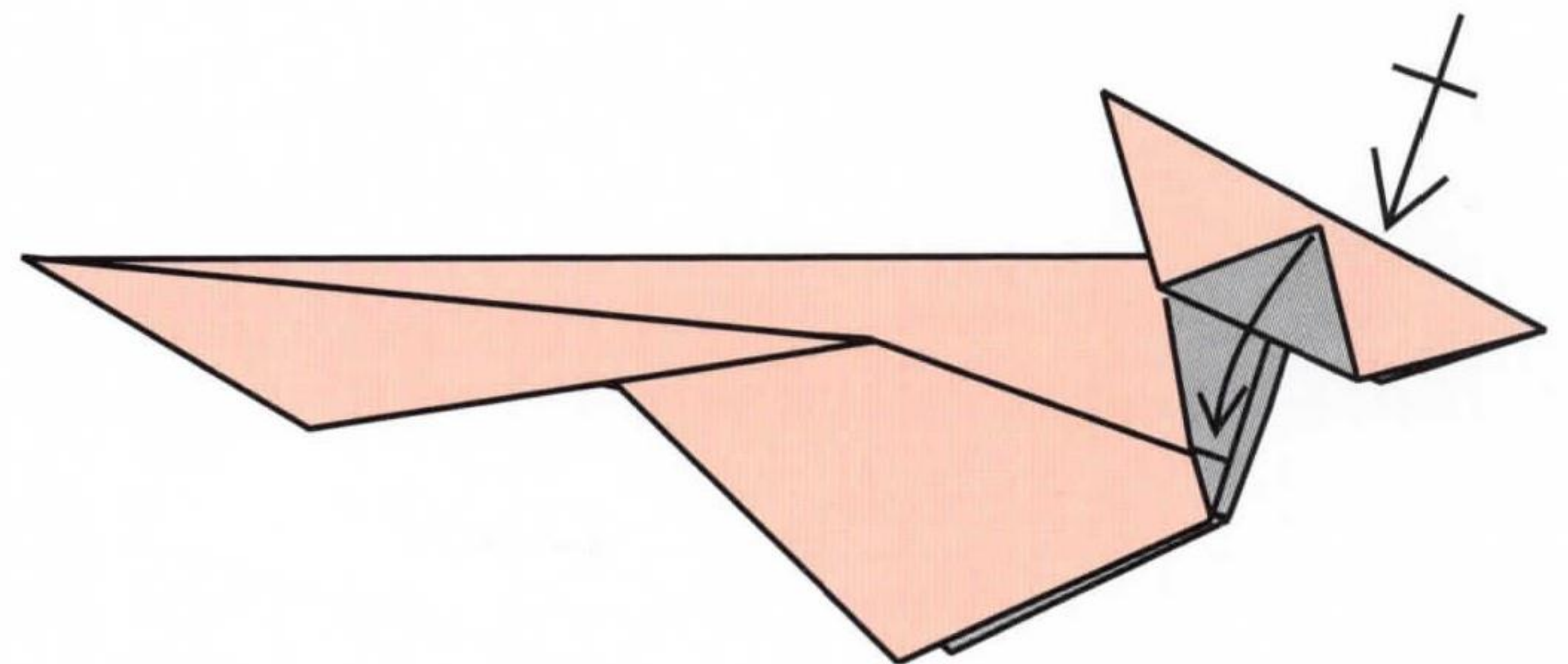
19. Using the existing crease, fold over.
Repeat behind.



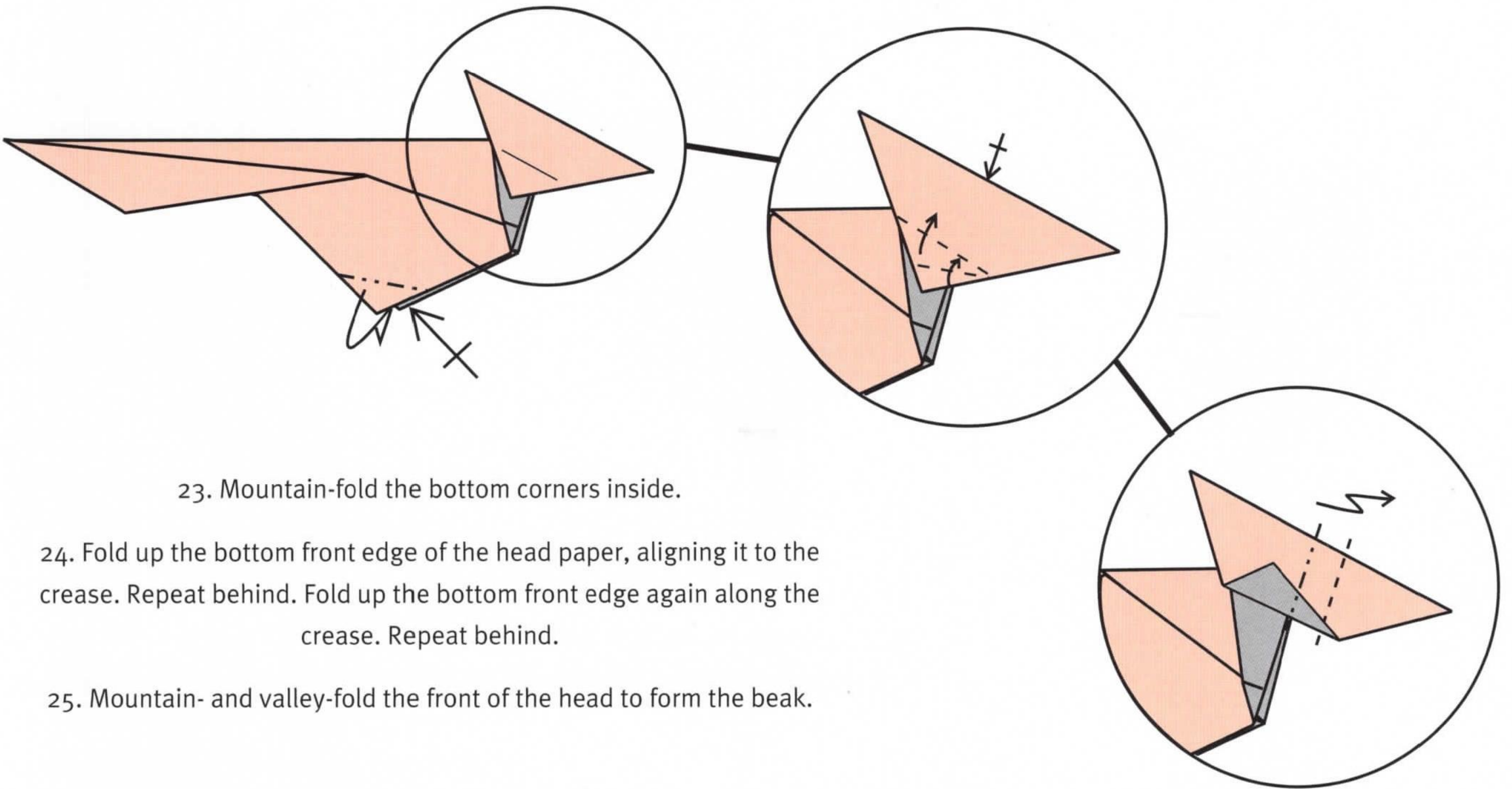
20. Fold the free square corners of the head to the middle of the folded edge.
Fold the free red and black corners of the tail over, covering the black paper completely.



21. Pull up on the back corner of the head (crest) and swivel the black paper at the front of the neck, changing the angle and displaying more black paper.



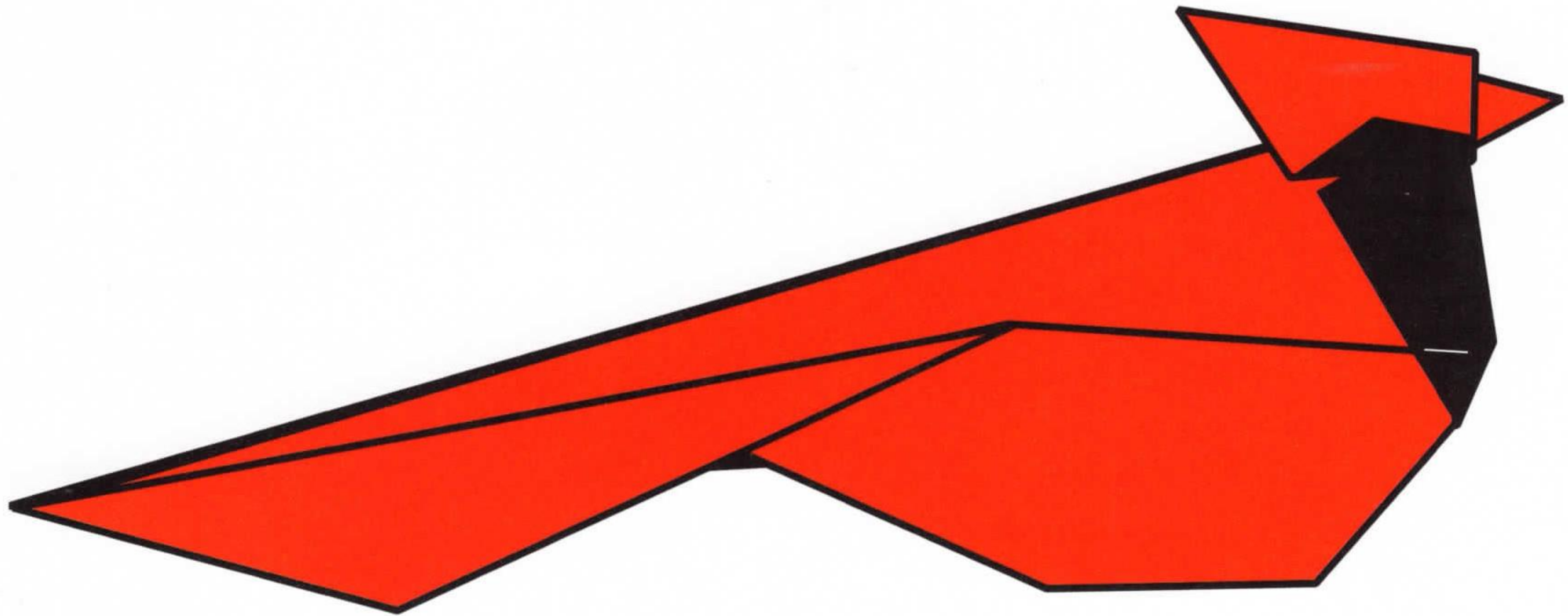
22. Bring down the corners on the head.



23. Mountain-fold the bottom corners inside.

24. Fold up the bottom front edge of the head paper, aligning it to the crease. Repeat behind. Fold up the bottom front edge again along the crease. Repeat behind.

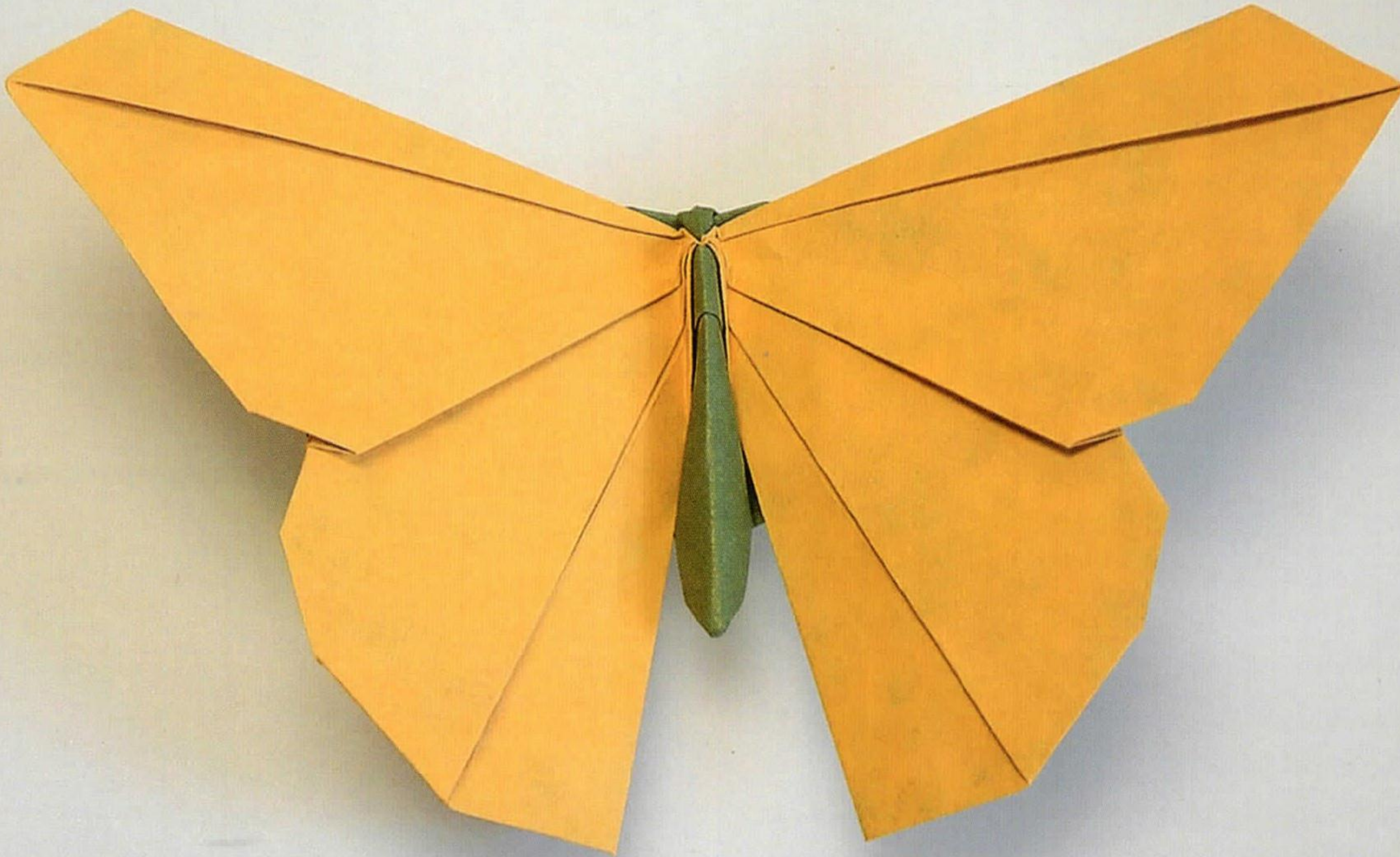
25. Mountain- and valley-fold the front of the head to form the beak.



26. The finished North American Cardinal.

origamido butterfly

Designed by Michael G. LaFosse

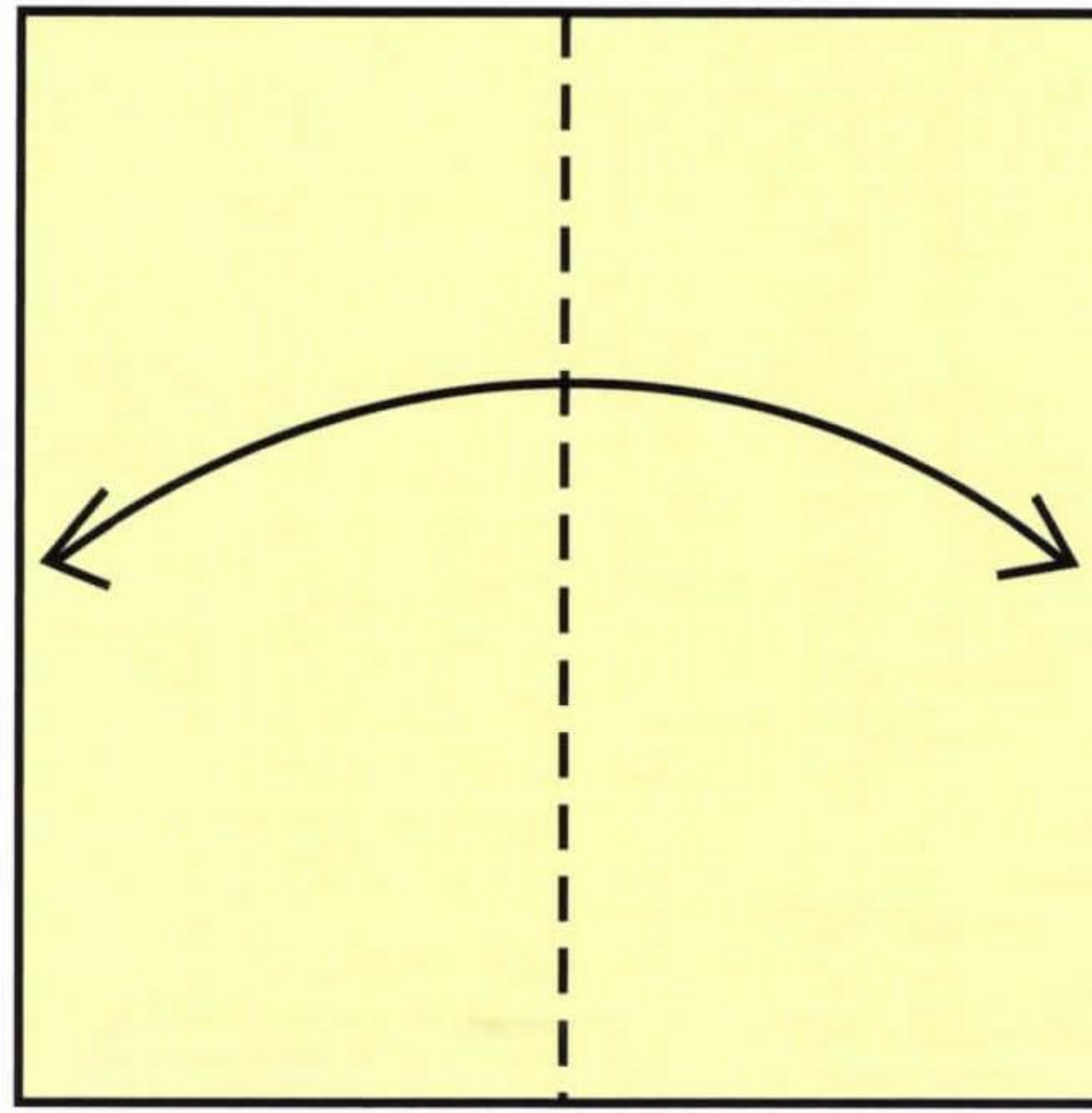


Alice Gray, an important origami pioneer, was also an entomologist at the American Museum of Natural History in New York City at the same time I was visiting Lillian Oppenheimer's Origami Center of America. We shared a subway trip from Lillian's apartment to the museum, and inspired by Alice's vocation I spontaneously folded an origami butterfly from a discarded piece of letter paper for her. Alice critiqued my creation and lamented that it was not from a square, since the general feeling amongst origamists in the 1970s was that all good origami must be from an uncut square. Since this design required a non-equilateral rectangle, I realized it was easy to start with a square, and simply fold one or more of the edges inward. As a bonus, the extra paper folded inward at the first steps could be fashioned later to produce interesting shapes and patterns in the final steps.

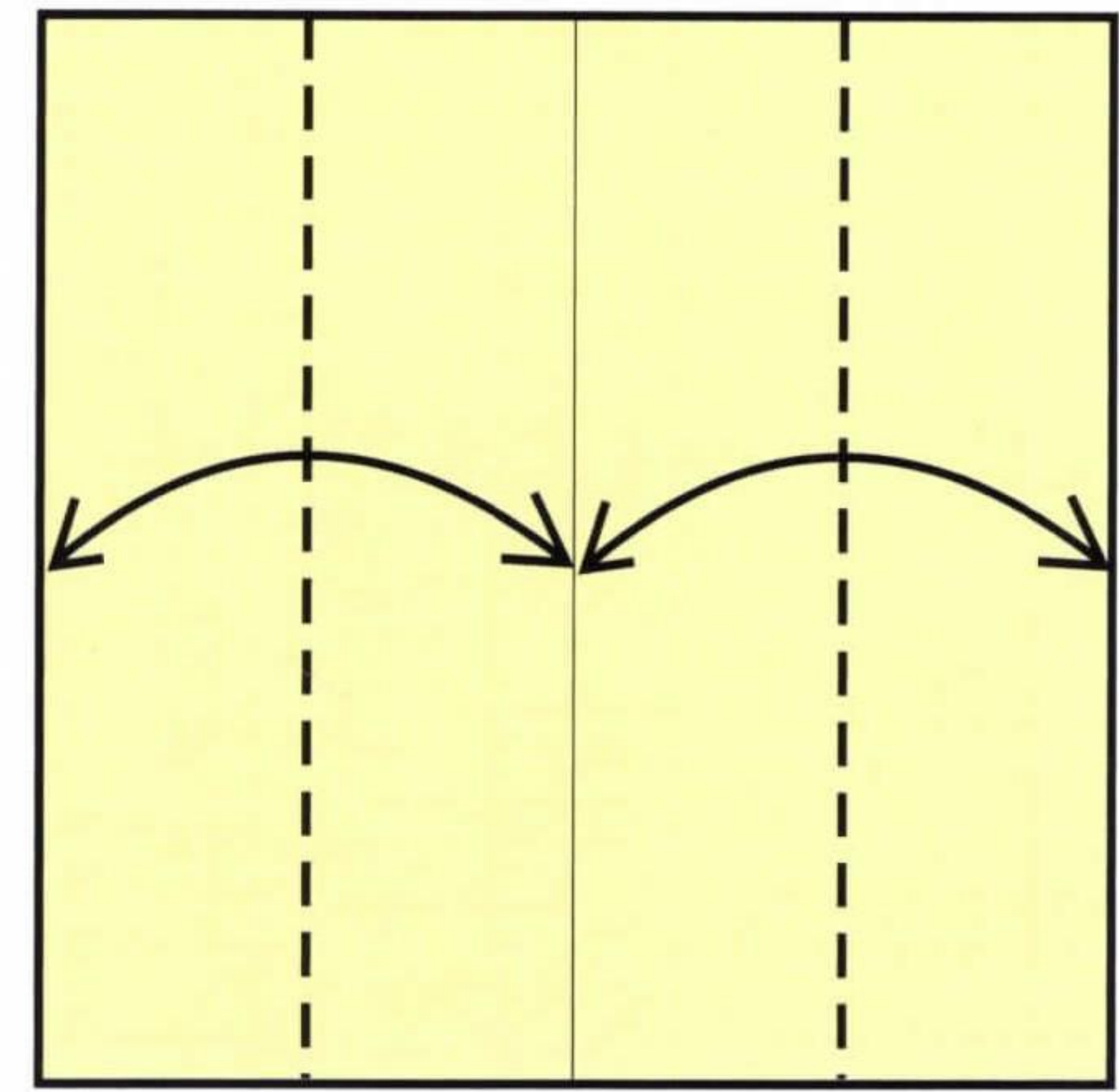
This design is actually a system of generating dozens of species of butterfly simply by mixing and matching several possible options at each of the first few steps. We have included this model to encourage creative play using origami. See if you can think through the final effect of making a particular change at an early step in the folding.

PAPER SUGGESTIONS

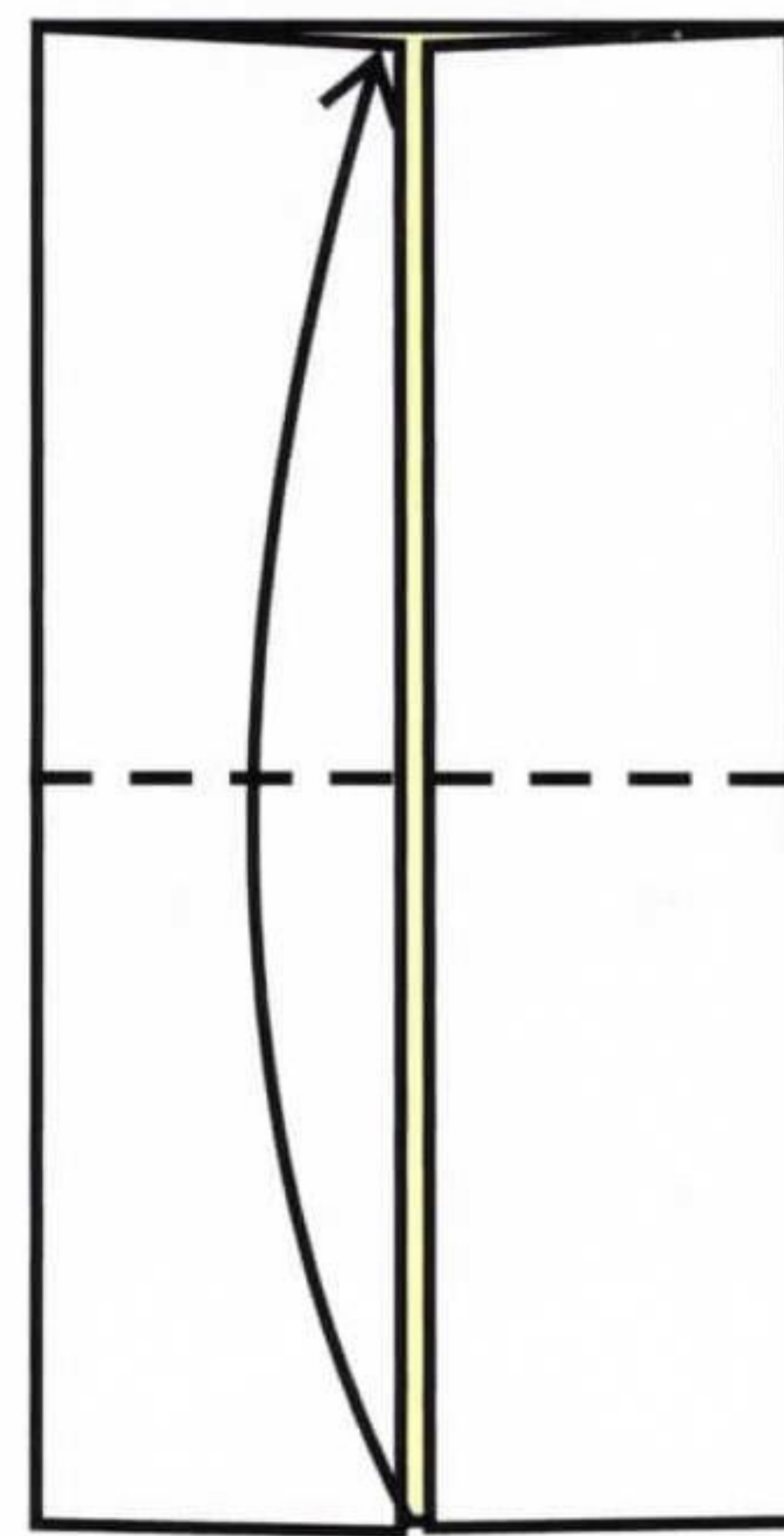
When using duo paper, the body will be colored differently from the wings. Although there are many duo papers prepared for the origami hobbyist, you can make your own duo papers by painting one or both sides of the sheet so that they are different. Almost any paper can be used as a base sheet. Let your imagination soar! You can apply any coloring or decorating techniques that you wish: tie-dye, sponge, spray, stamp, pencil or crayon. You can even run paper through a color printer! Just make a colored area in a graphics application and print. Flip the printed paper over and repeat with a different color, then cut out a square shape for folding. Another method of making duo paper is to paste two different sheets together. If you are making handmade paper, you can form two sheets, each a different color, and press them together, back to back. When dry, they will be a duo sheet.



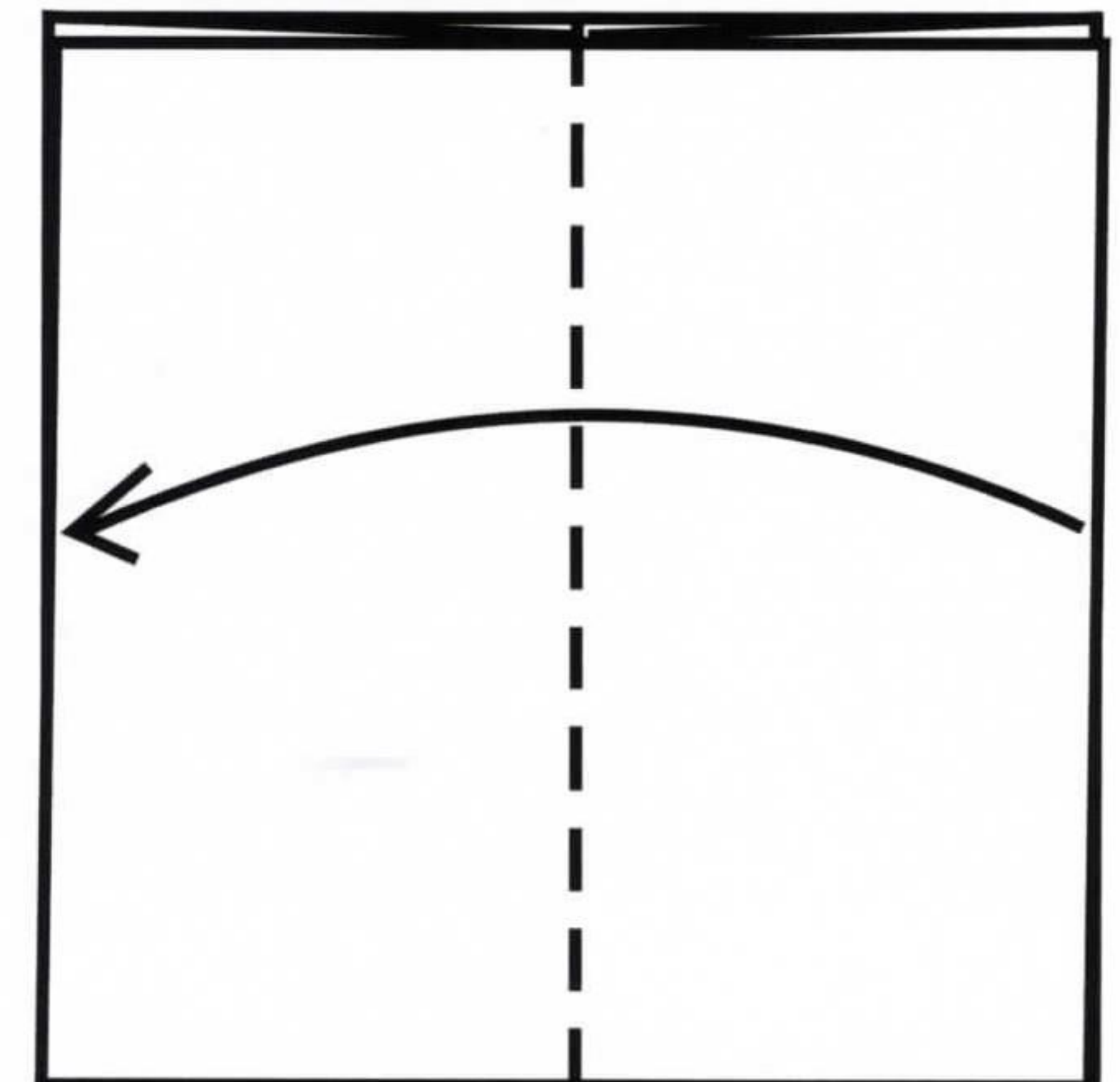
1. Begin with the color desired for the wings facing up. Fold in half, edge to edge. Unfold.



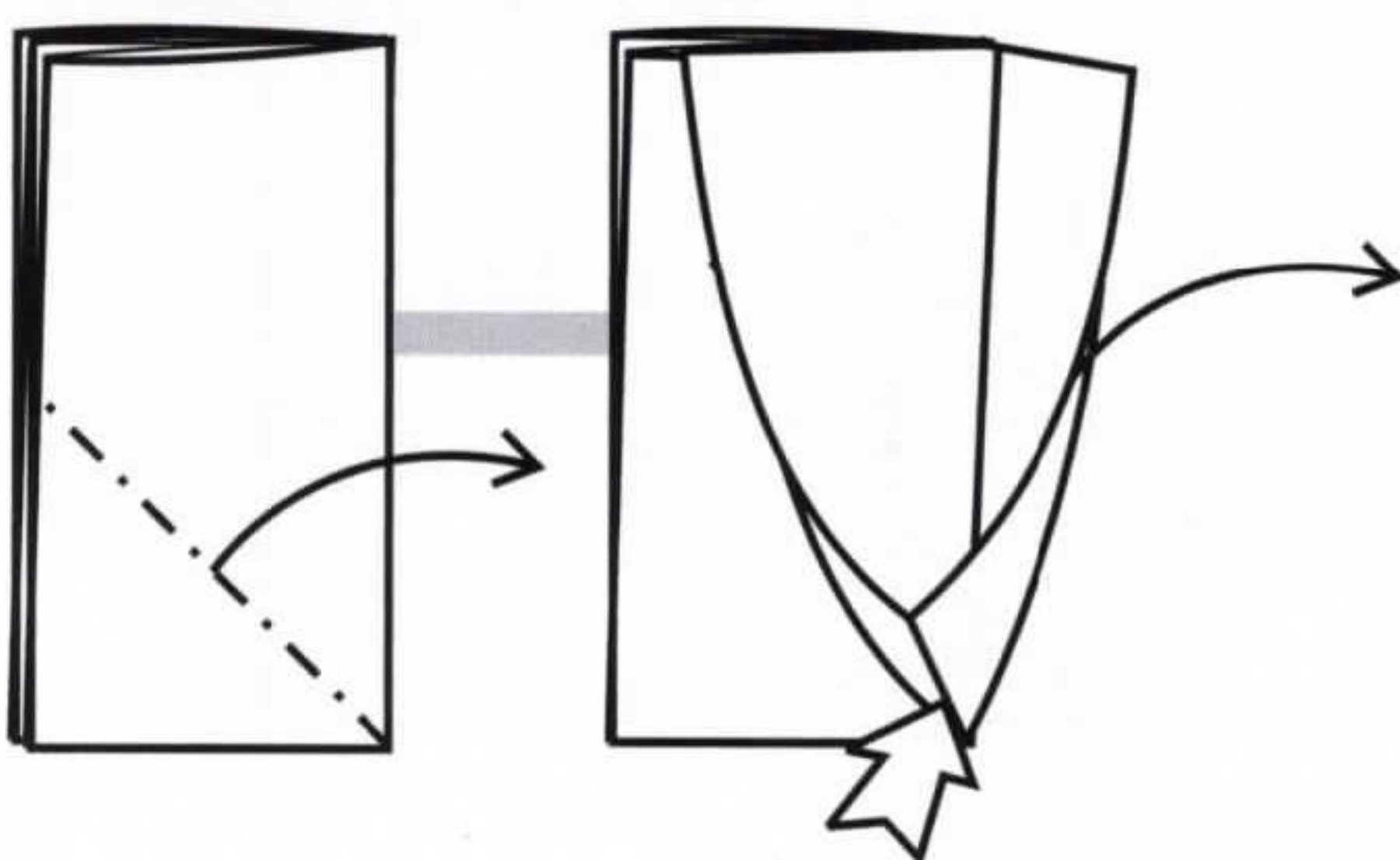
2. Fold the left and right edges to the crease.



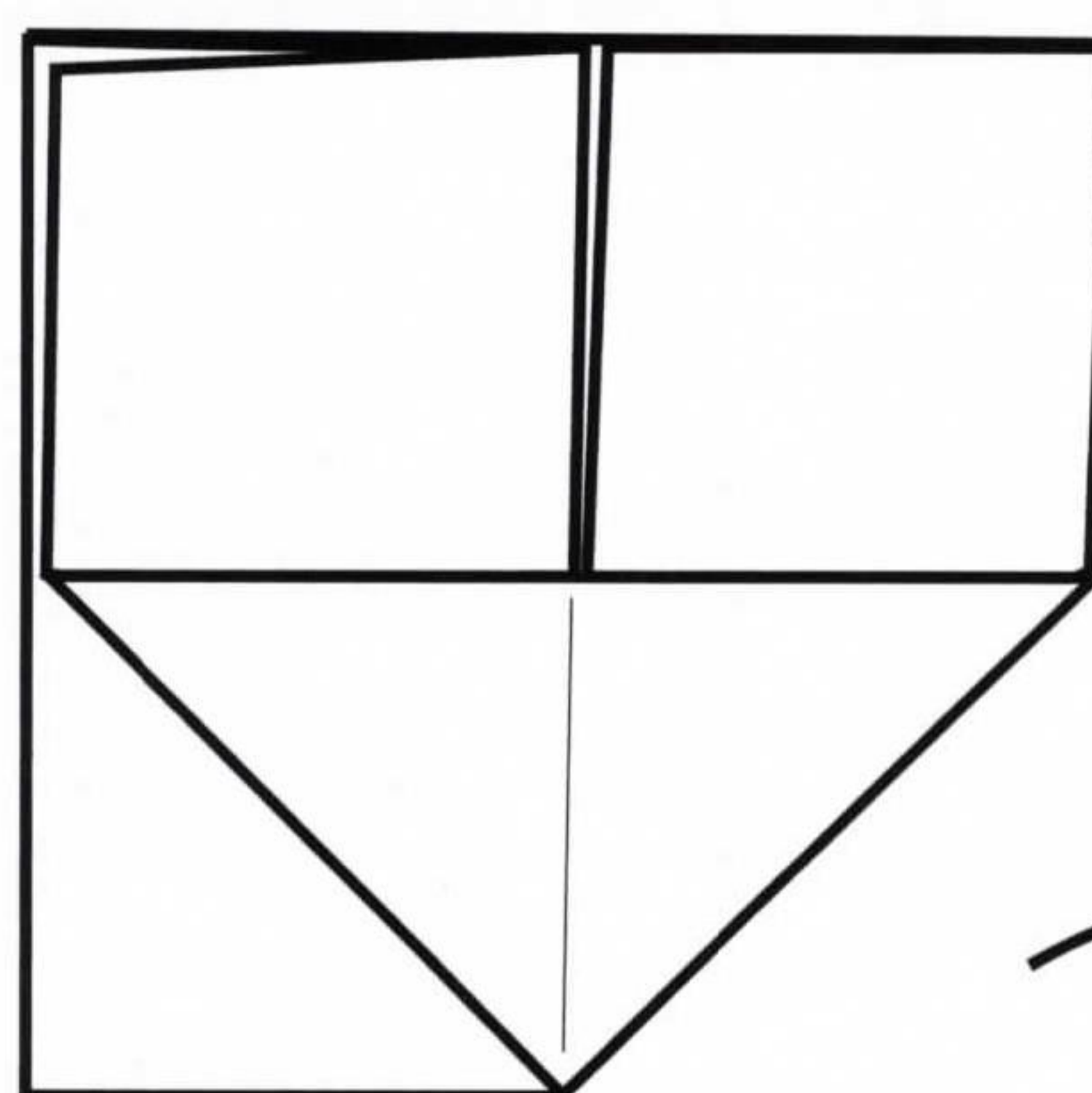
3. Fold in half, short edges together.



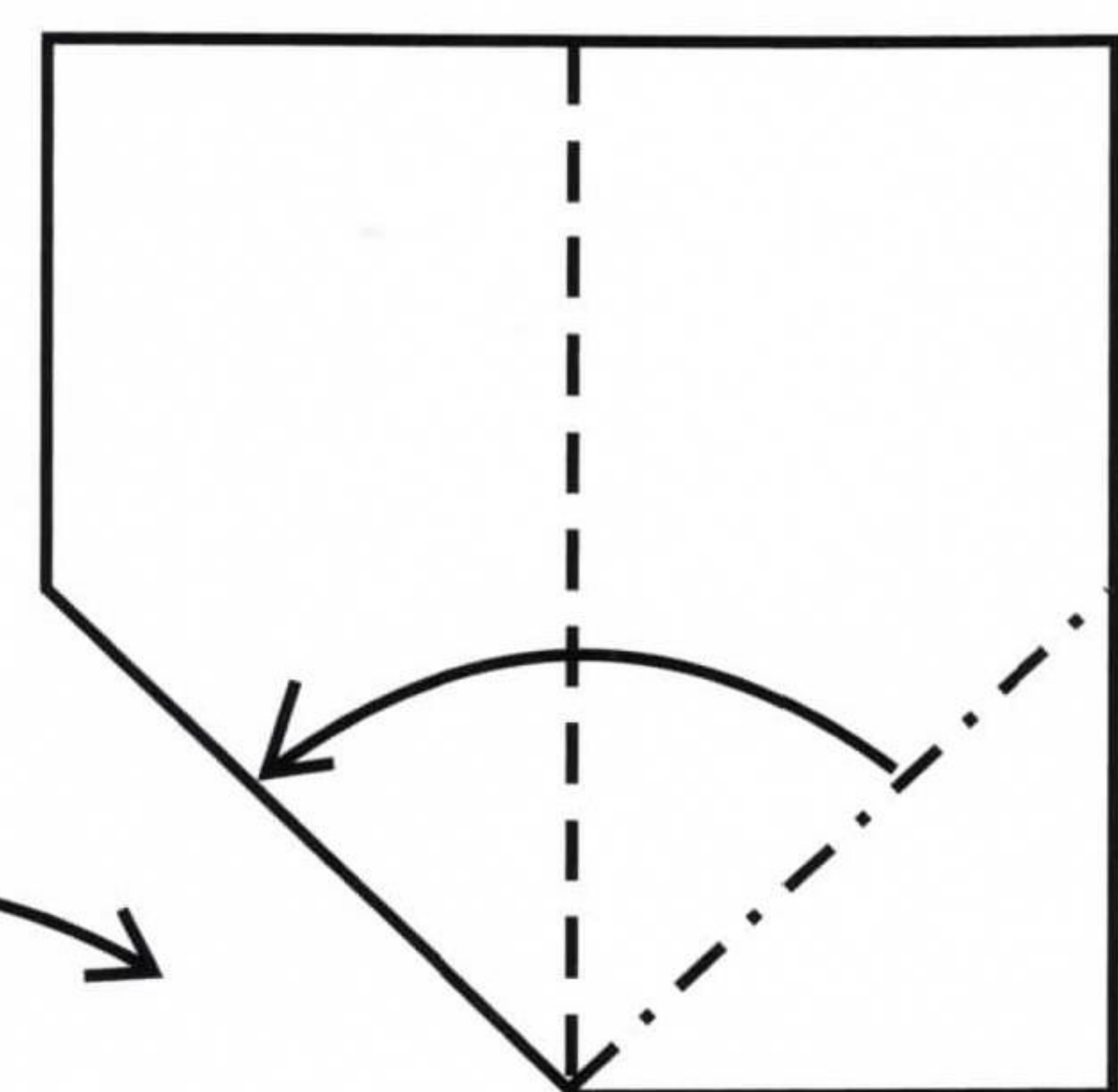
4. Fold in half, right-side double folded edges to the left.



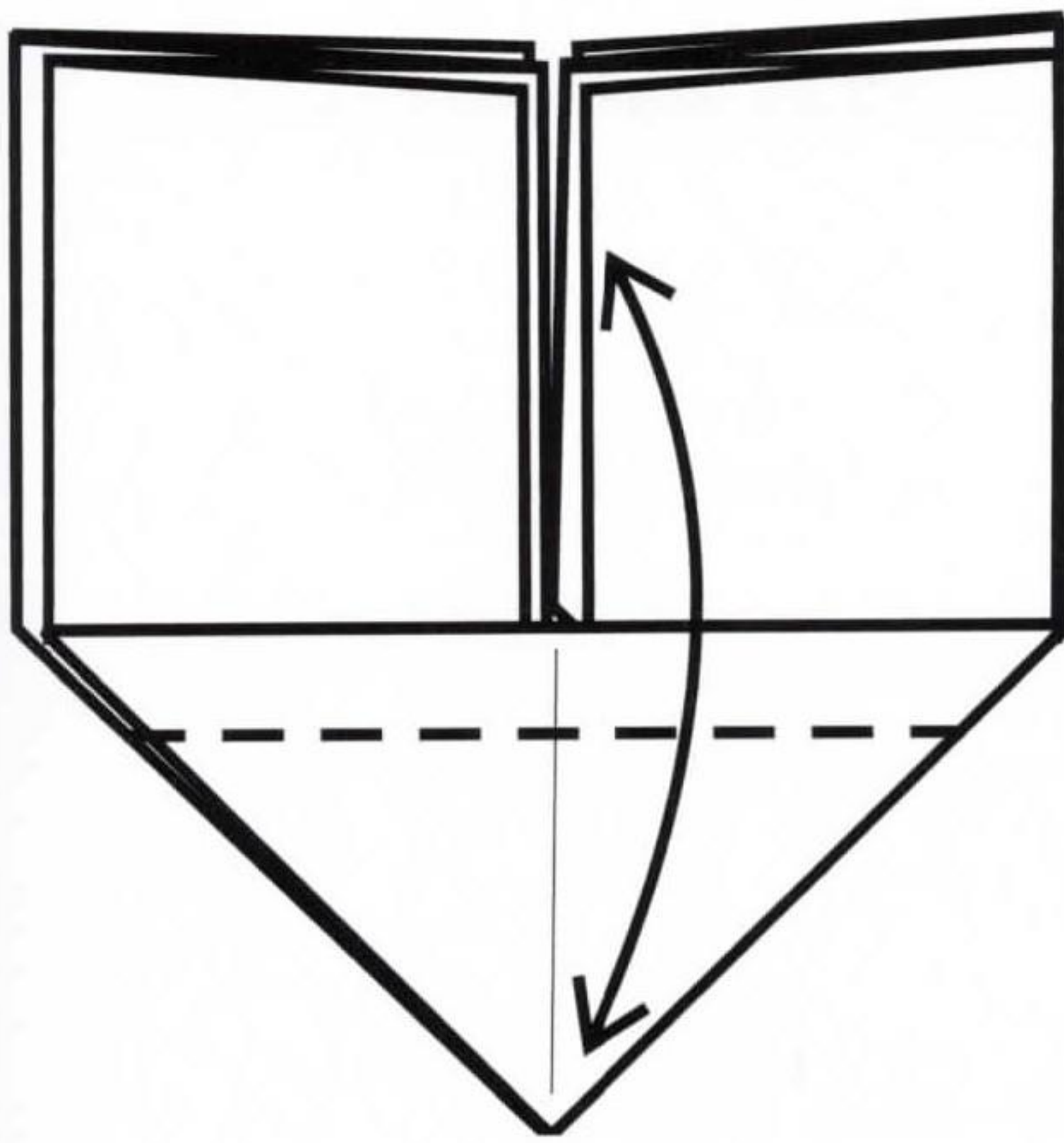
5. Squash-fold the bottom corner.



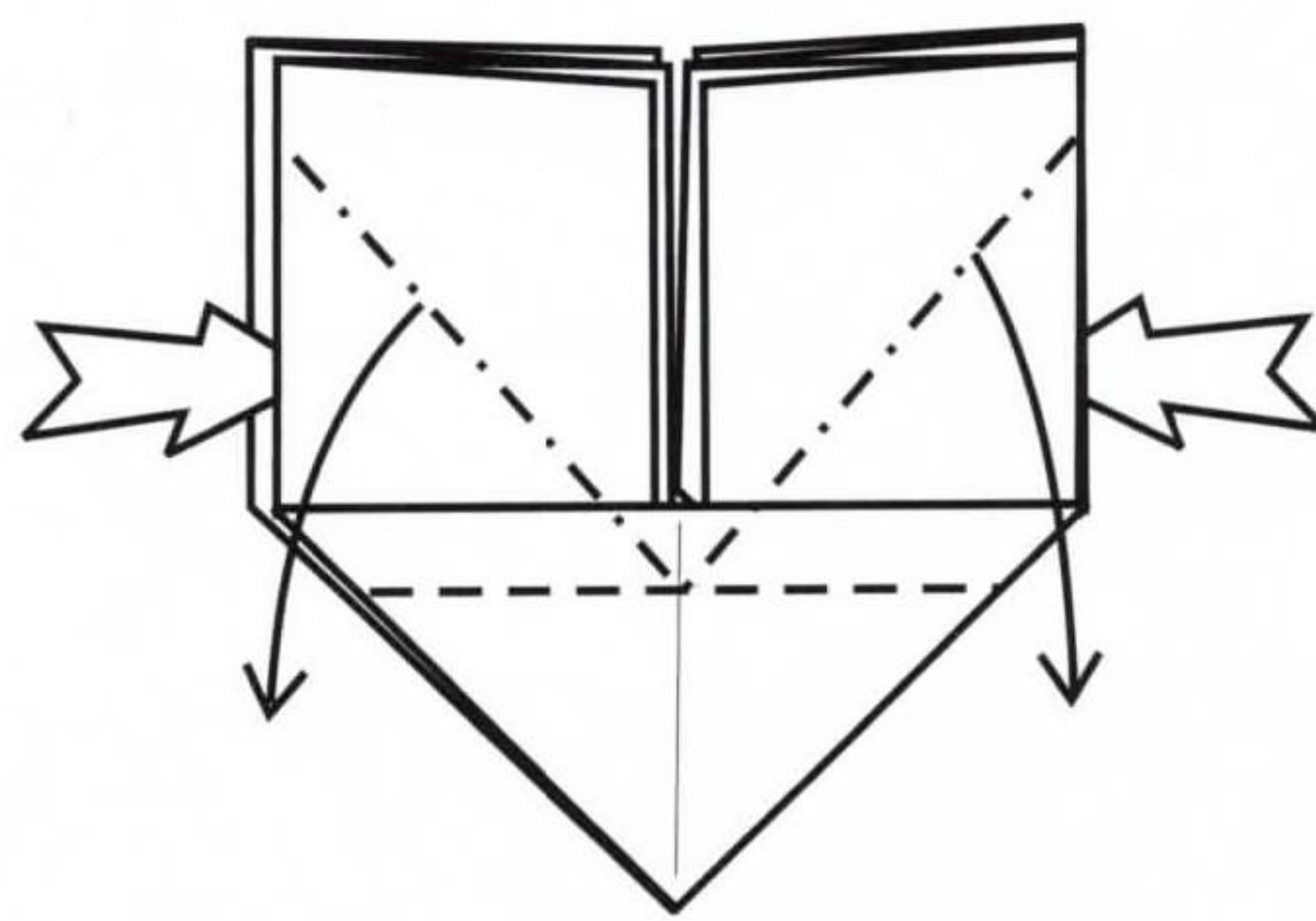
6. Your paper should look like this. Turn over, left to right.



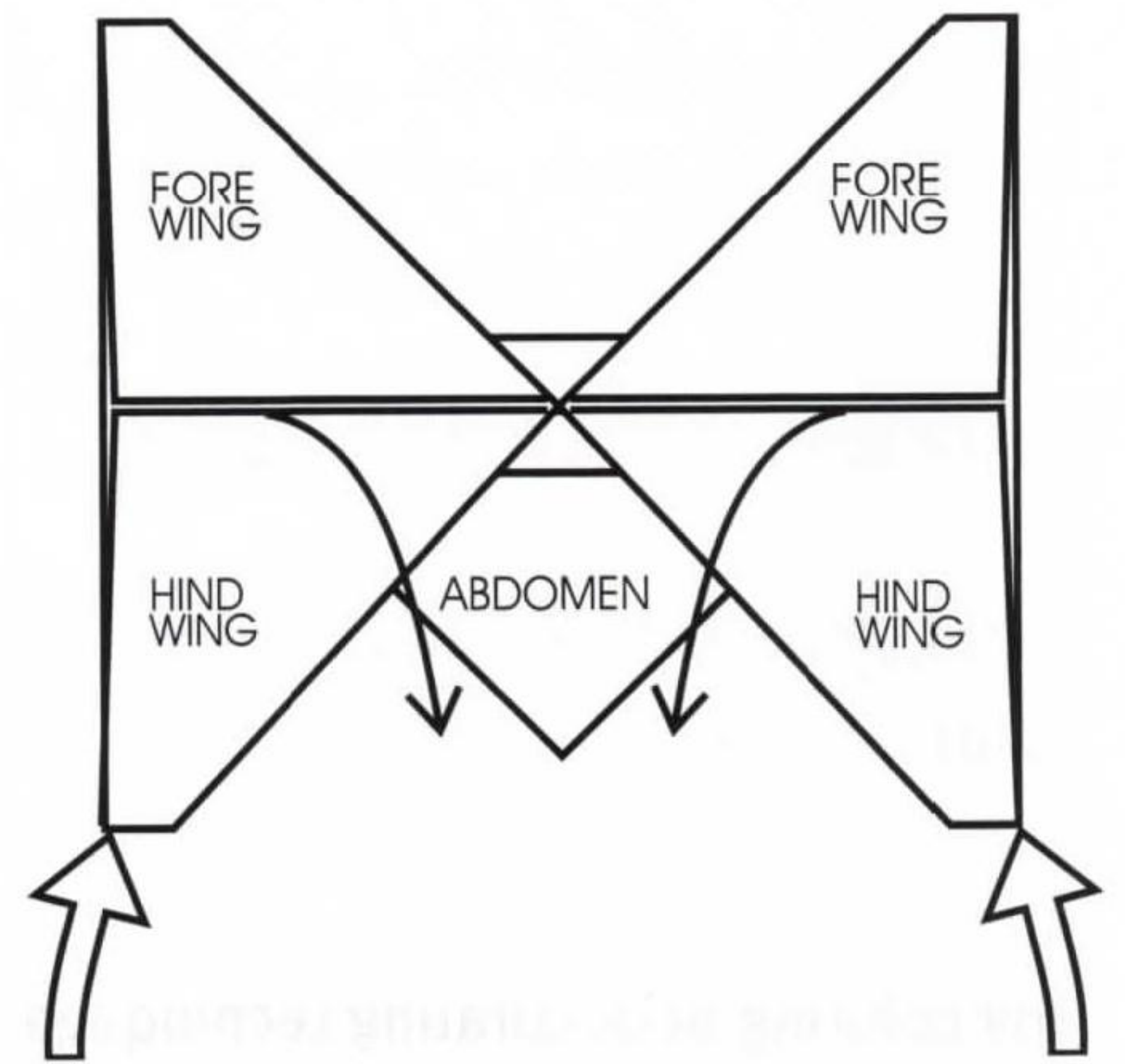
7. Squash-fold the bottom corner.



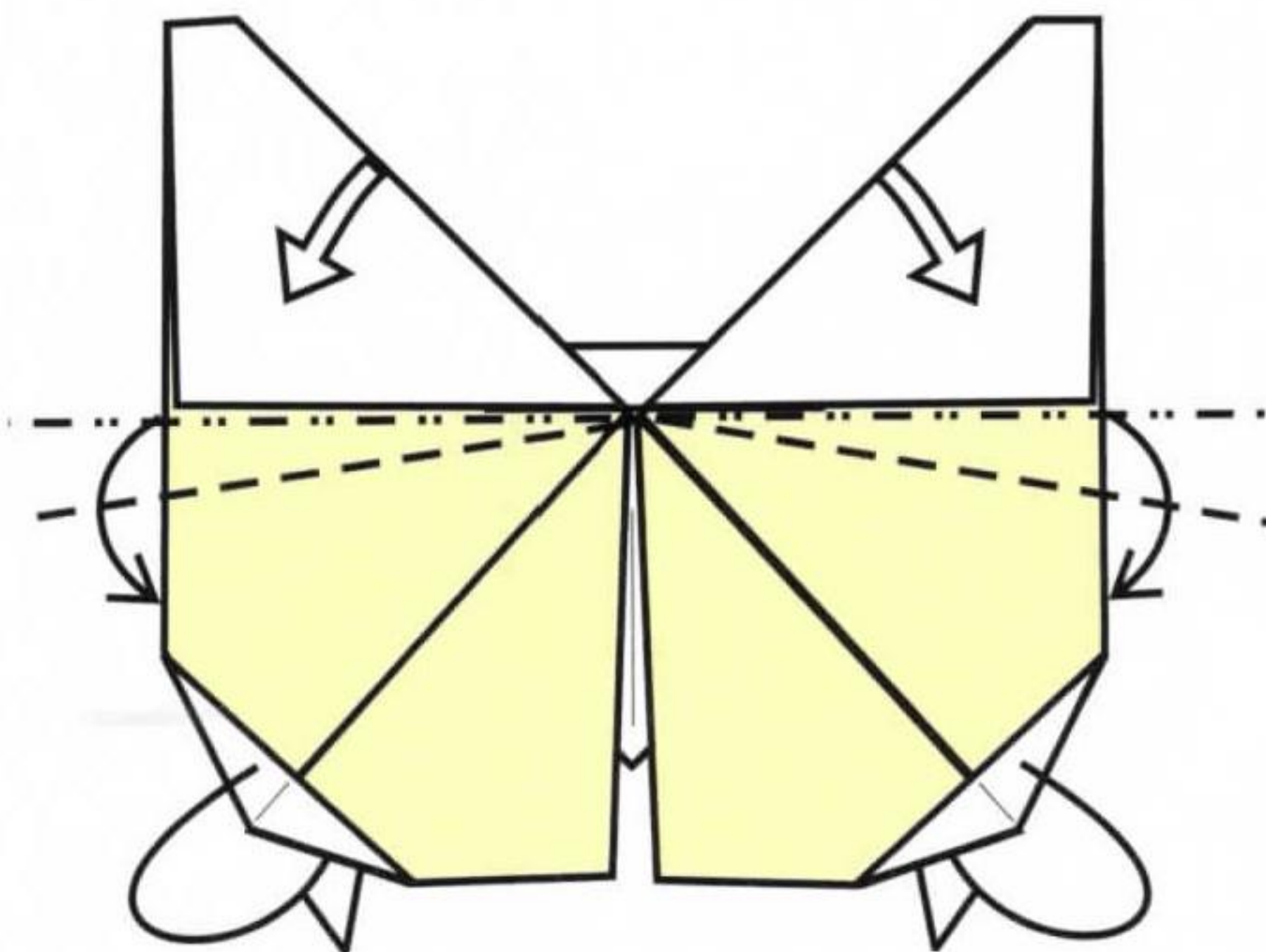
8. Fold up the bottom corner, about a quarter way down from the middle folded edge. Unfold.



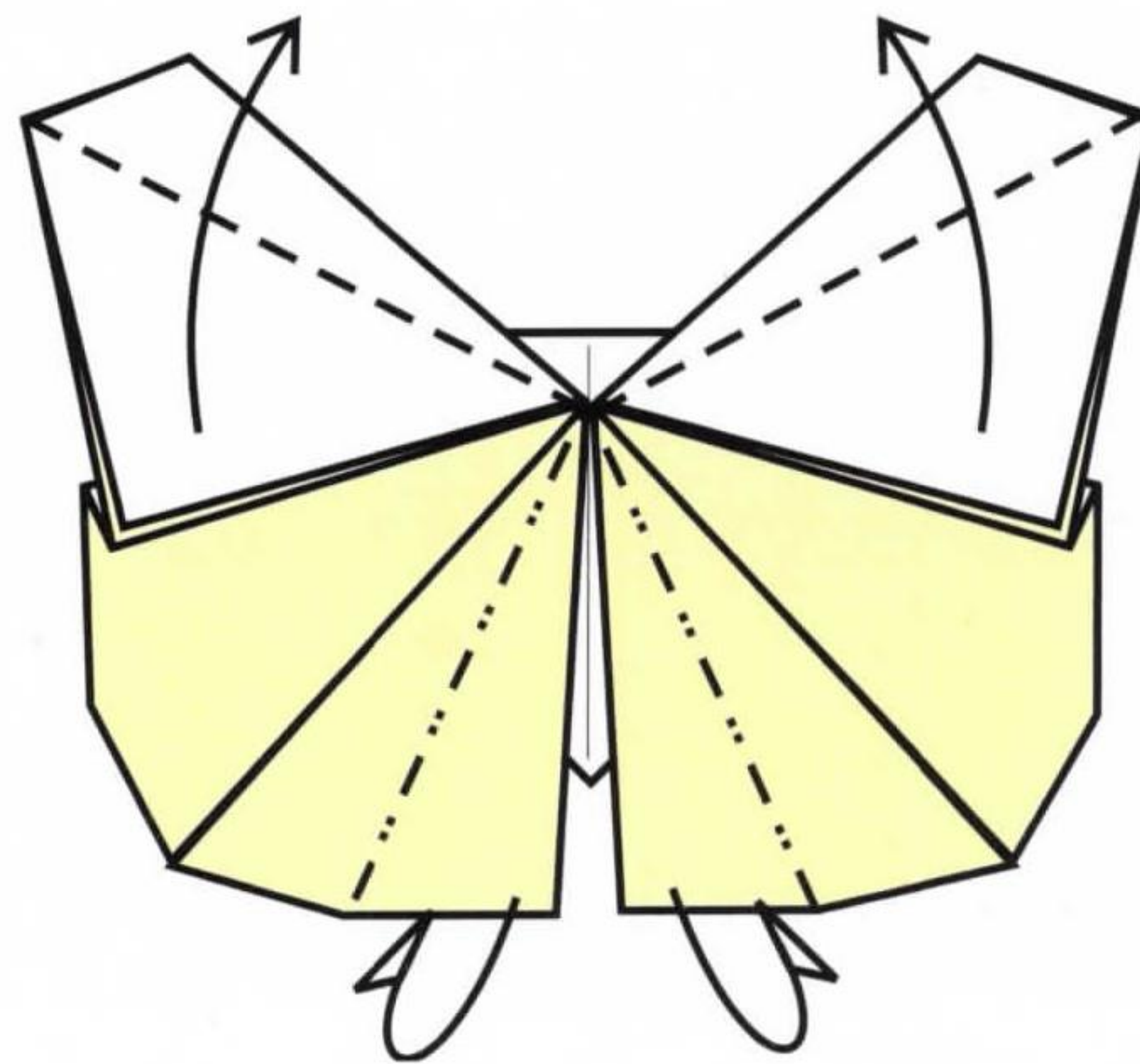
9. Squash-fold the upper left and right sections, being careful to make the squash creases hit the center of the folded line made in the previous step.



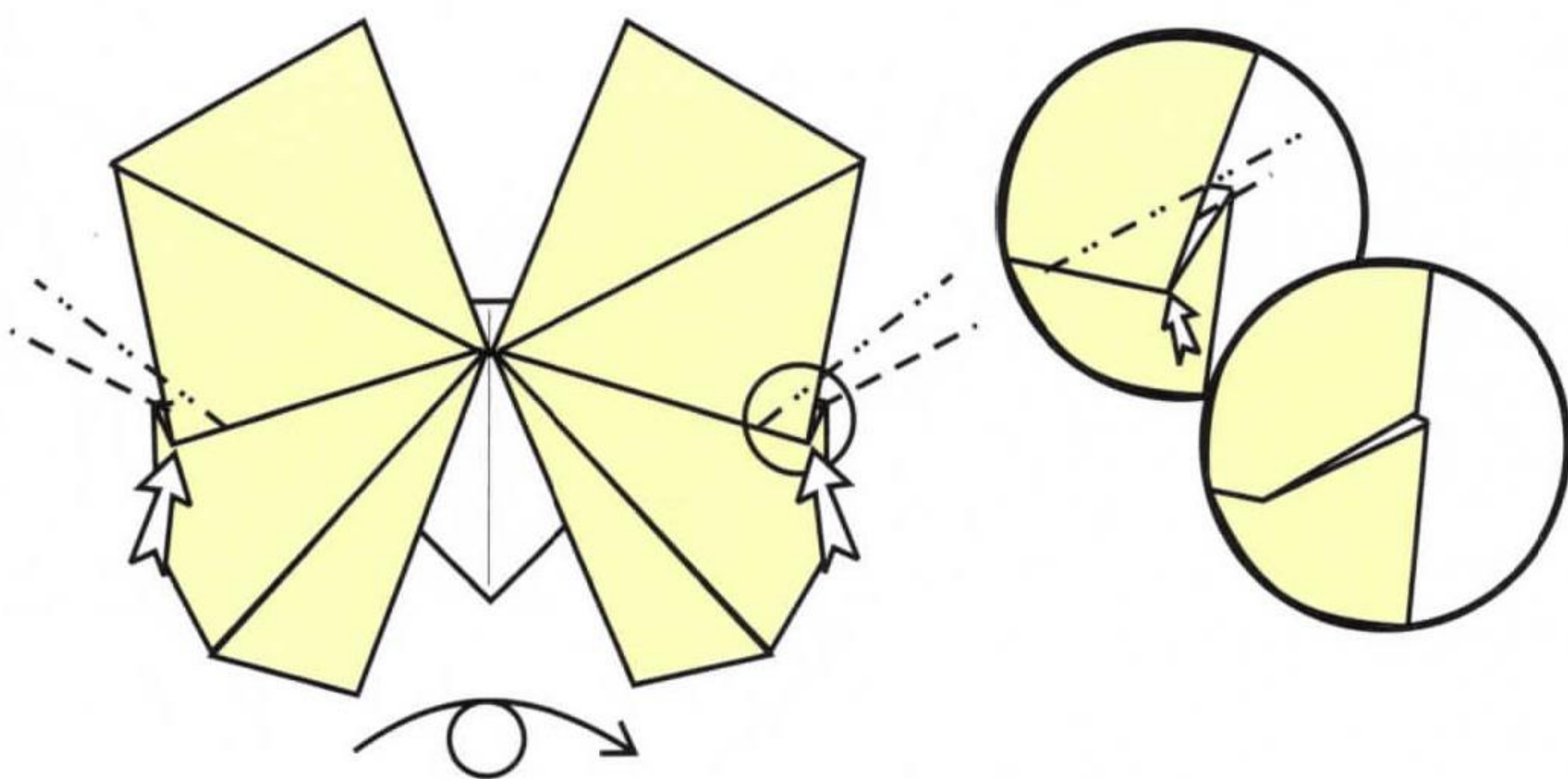
10. Your paper will look like this. With the abdominal corner at the bottom, move the top layers of the hind wings down, squash-folding the bottom corners of both wings.



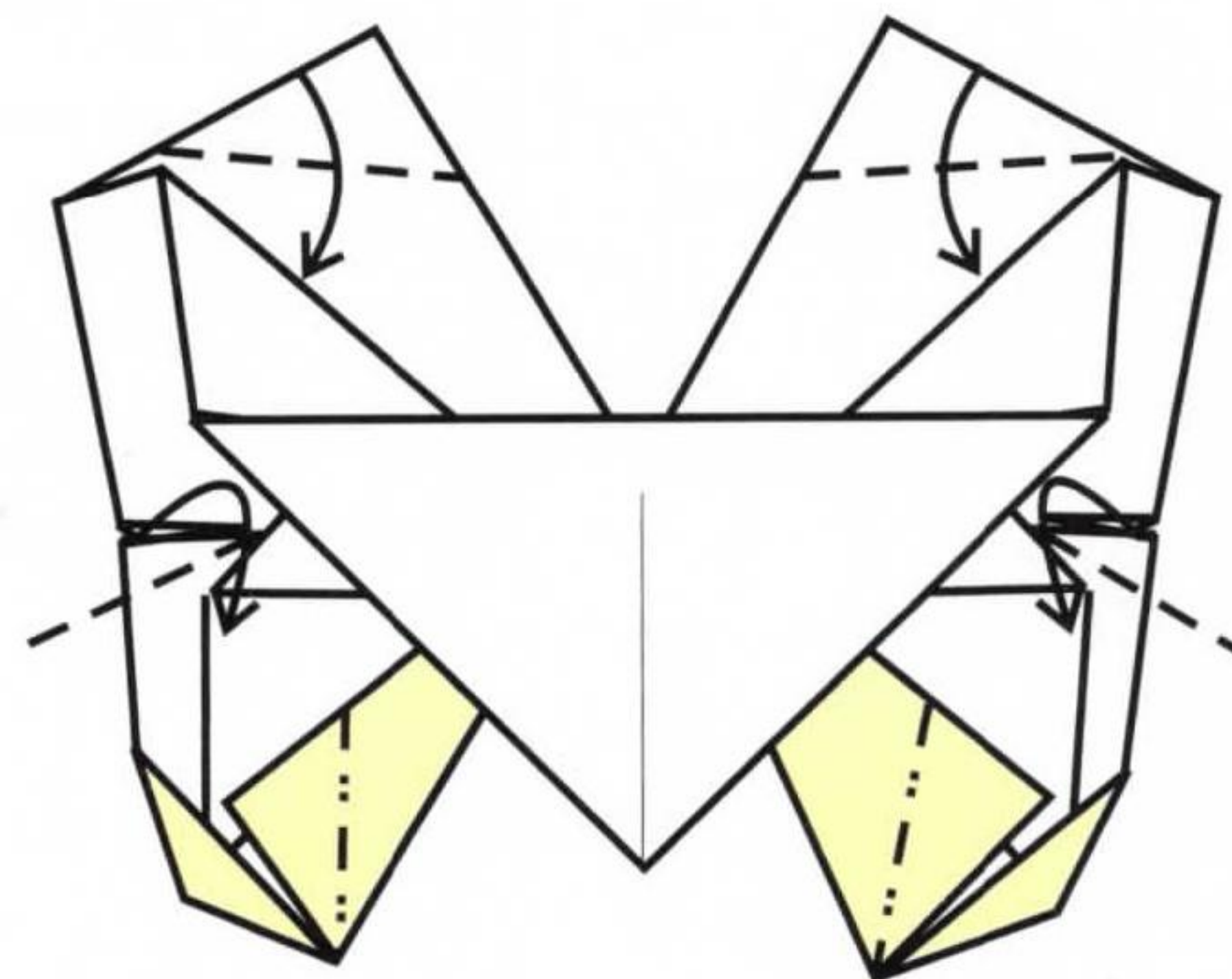
11. Form a mountain crease edge across the middle of a wing and move it downward, reshaping the forewing and defining a separation between the forewings and hind wings. Repeat with the other wing. If desired, turn the triangle of paper on each hind wing inside out.



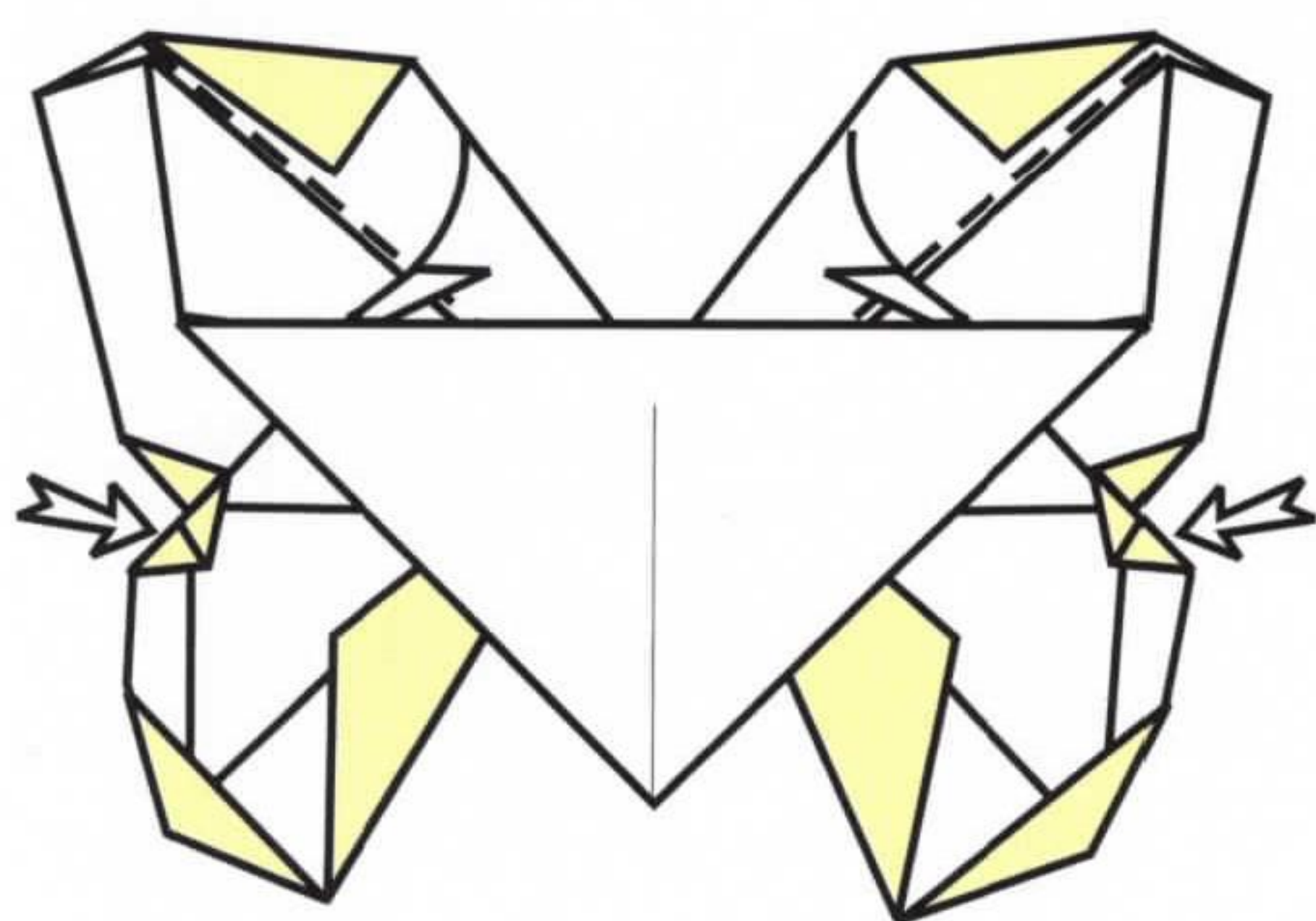
12. Mountain-fold the hind wing edges under to reveal the abdomen. Fold up the top layer of the forewings.



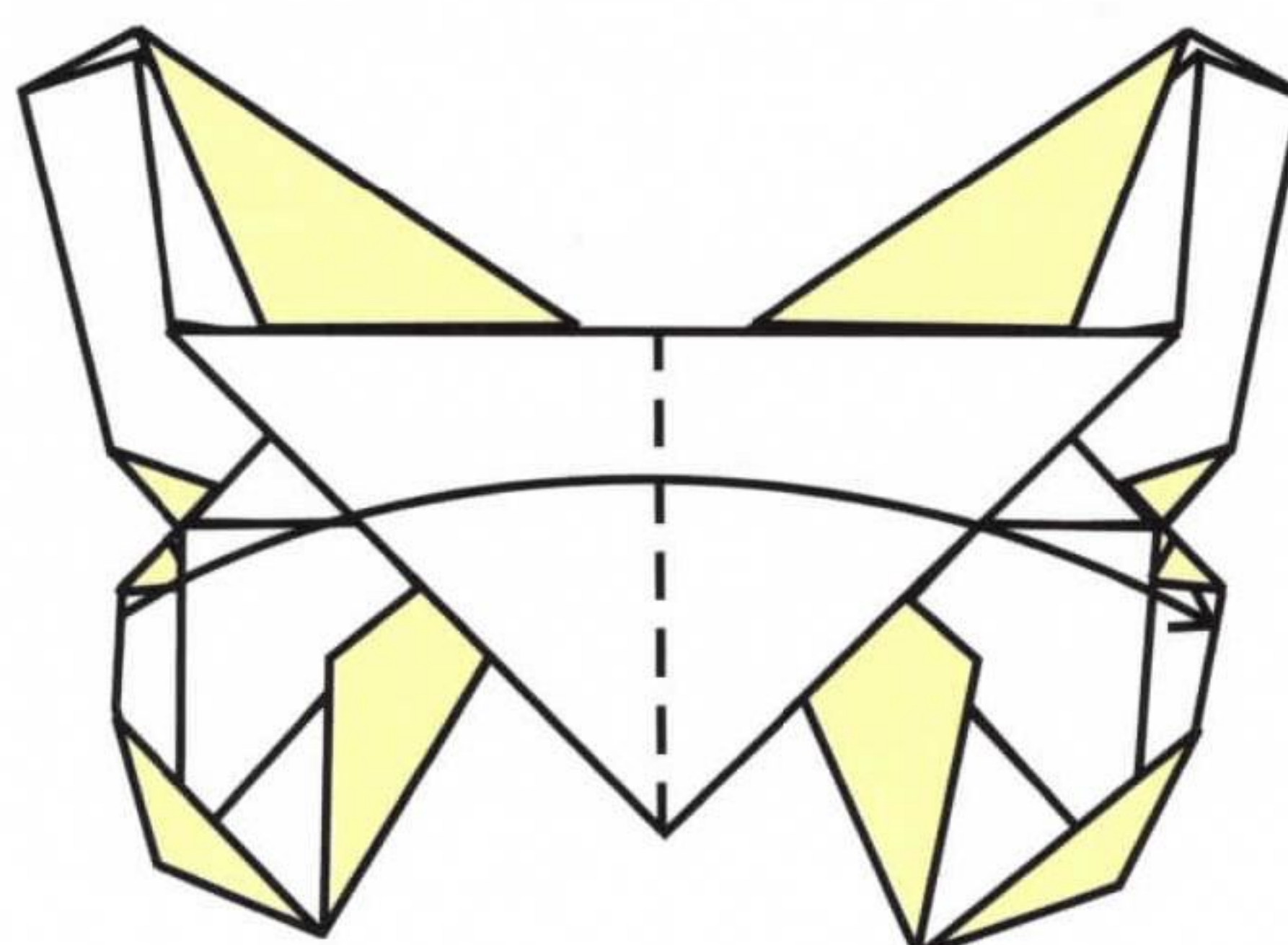
13. Inside-reverse-fold the indicated corners at the separation point of the forewings and hind wings. Turn over, left to right.



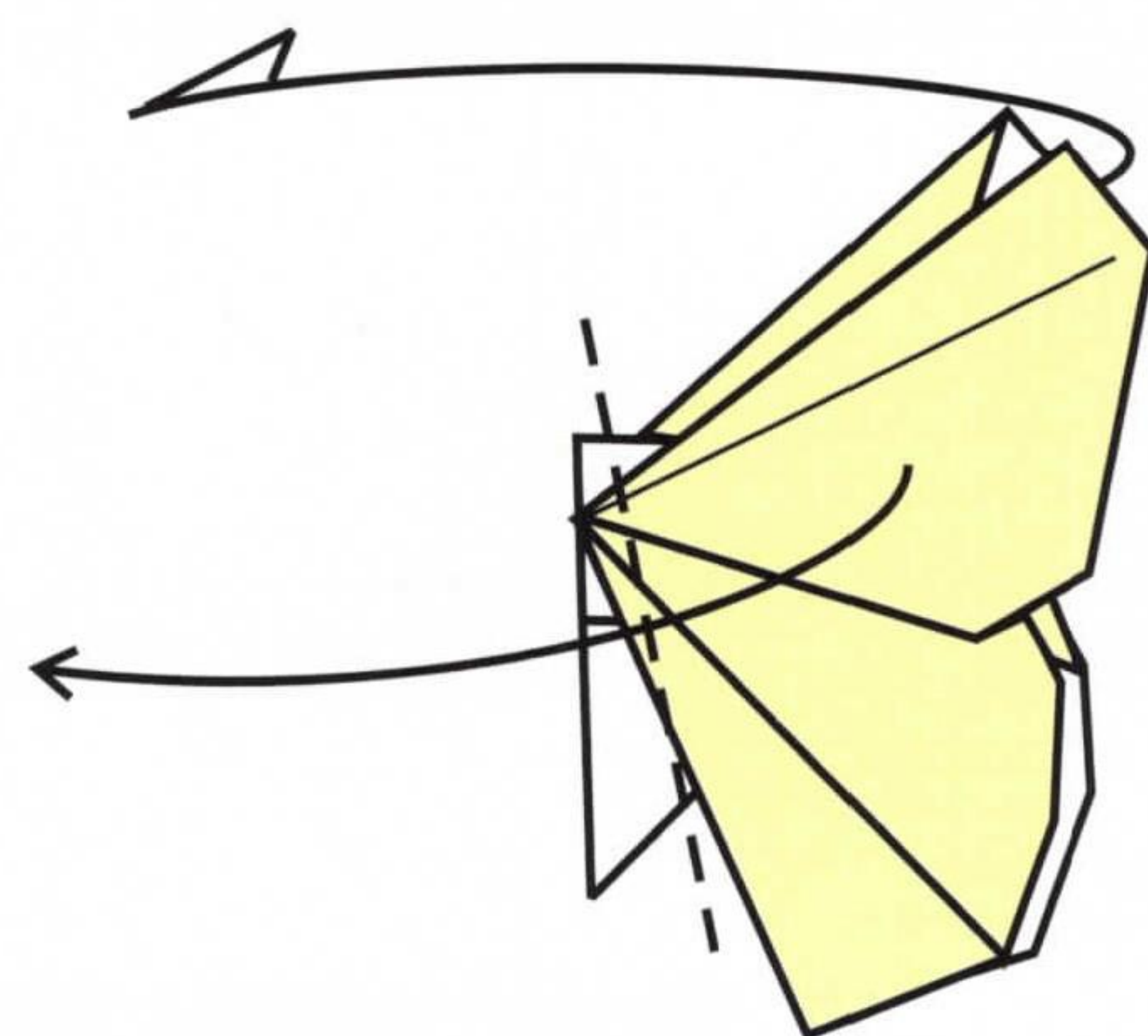
14. Clean up the back side with the indicated folds. You can be creative with the shapes of the top folds and the mid-side folds.



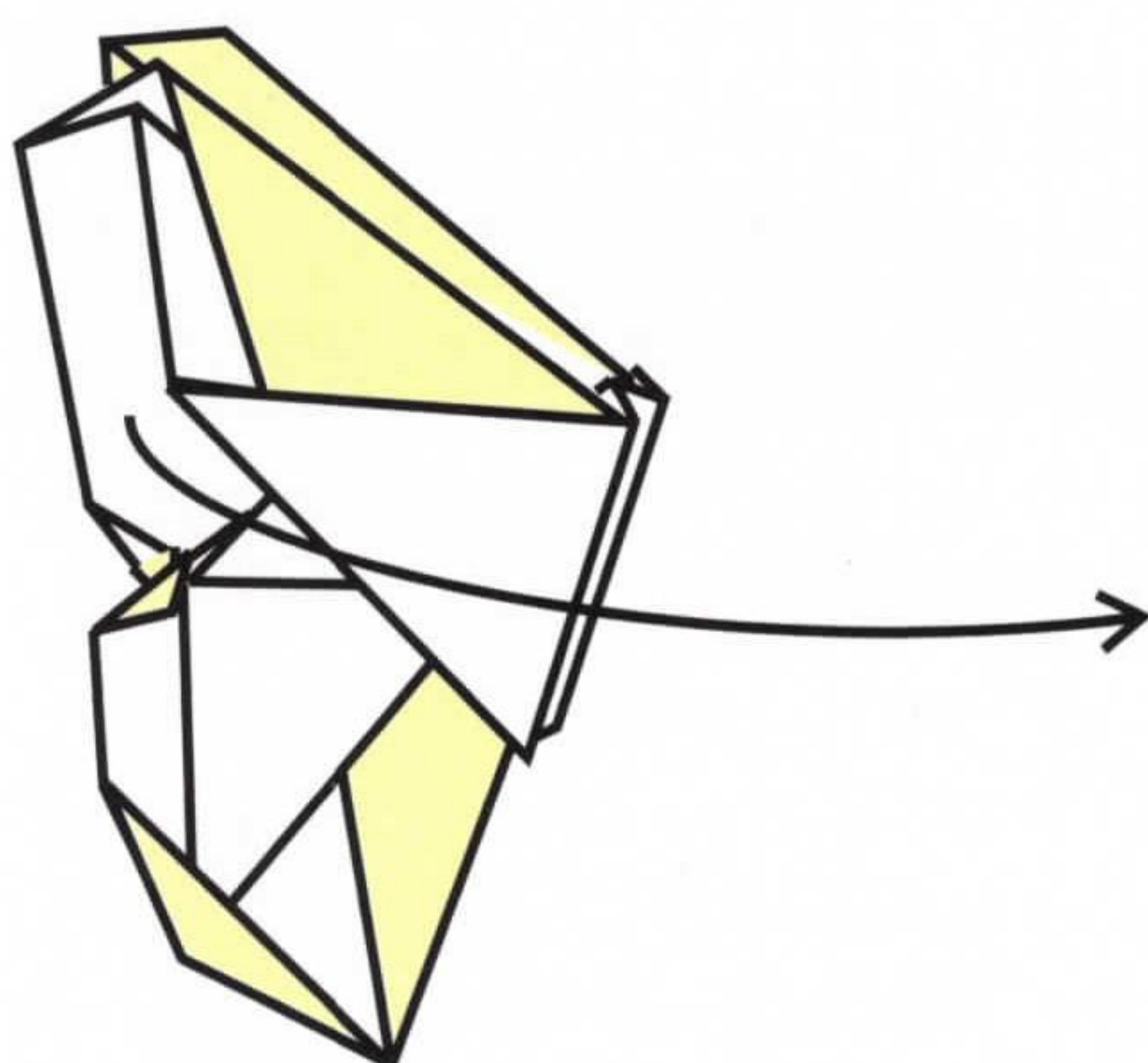
15. Fold the top edges inside. Notice the notches created at the mid-side points.



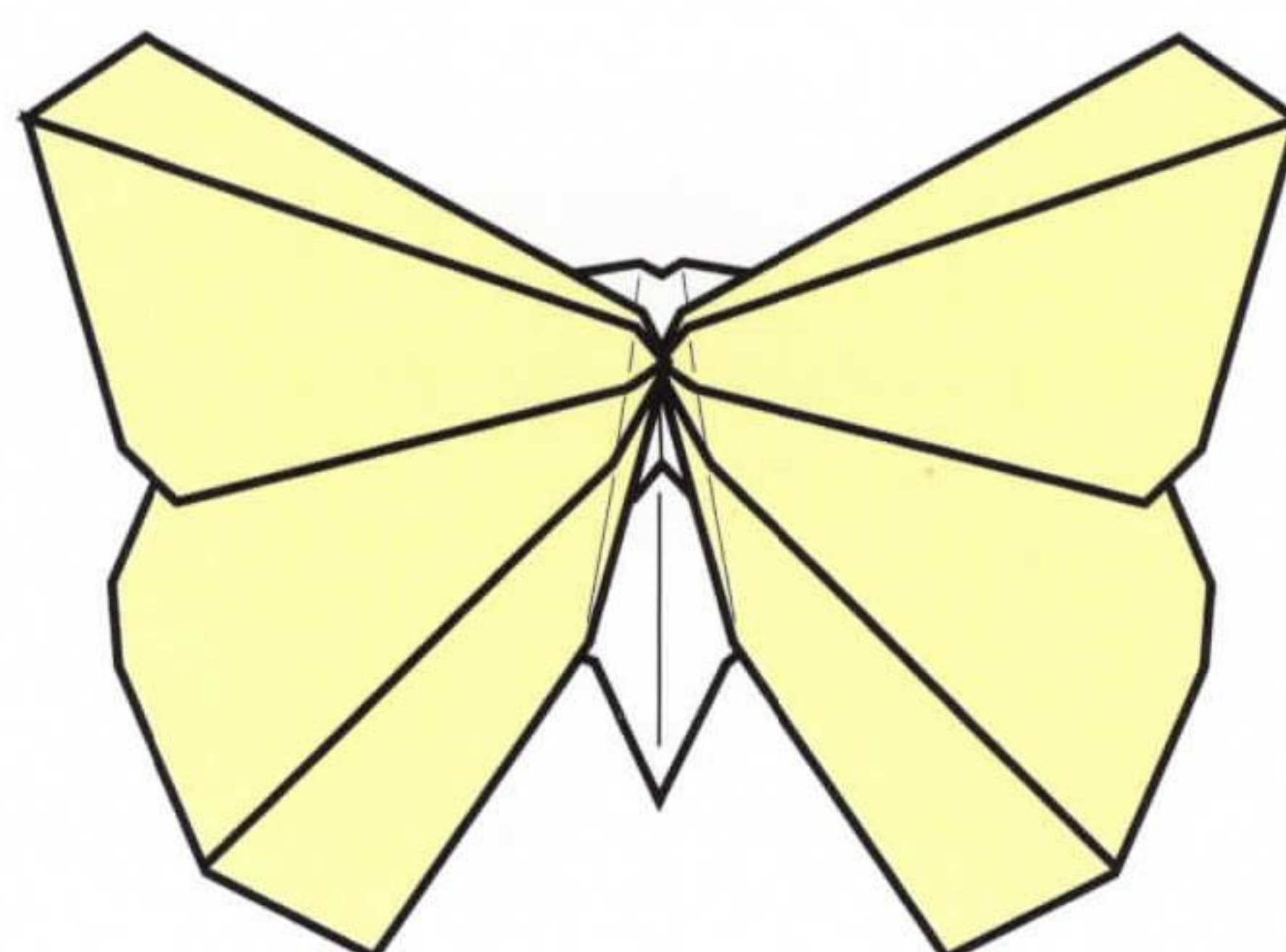
16. Fold in half.



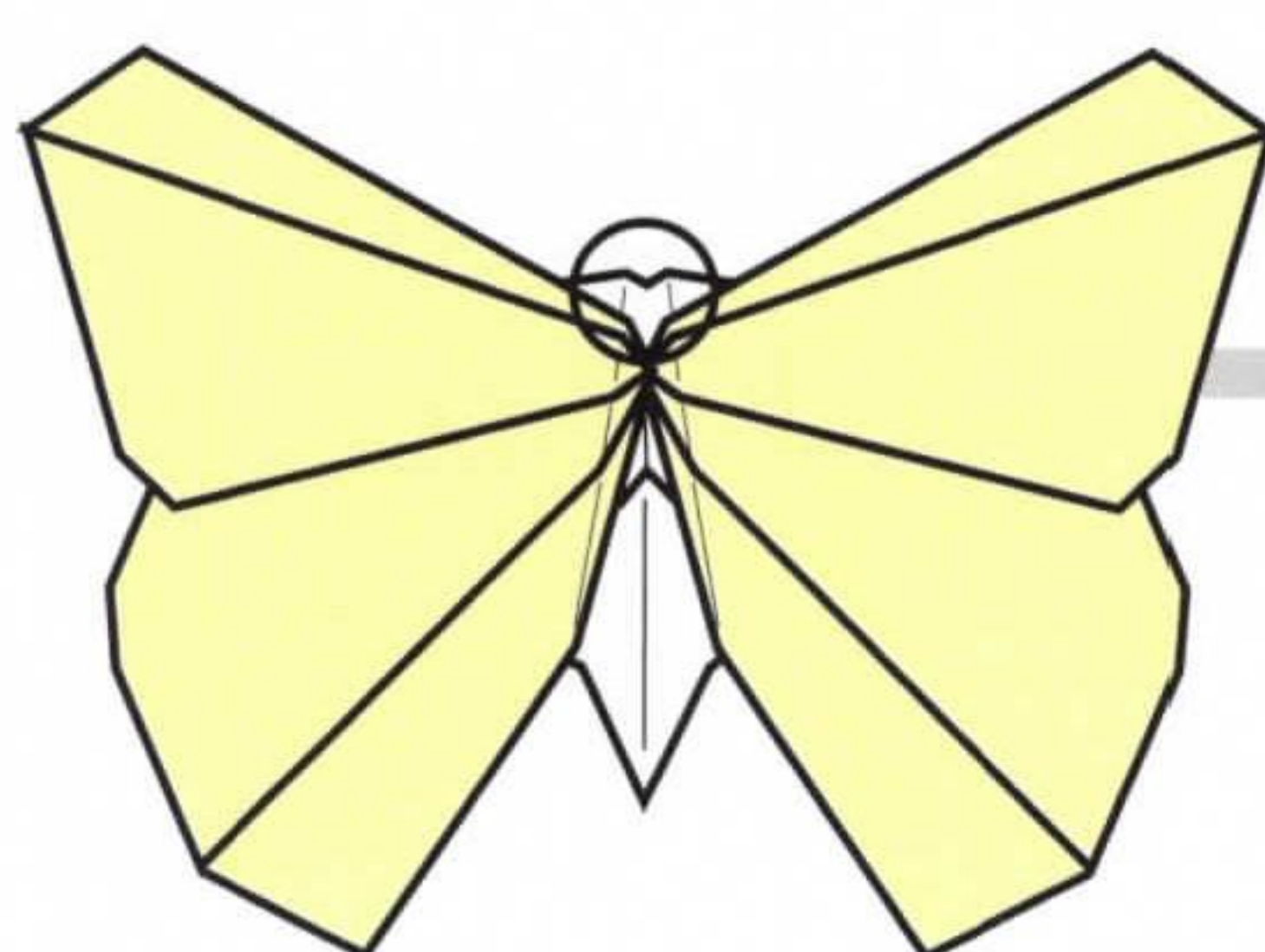
17. Fold each wing set against the body, one to the left and one to the right. You can be creative with the angle.



18. Open, display side up.



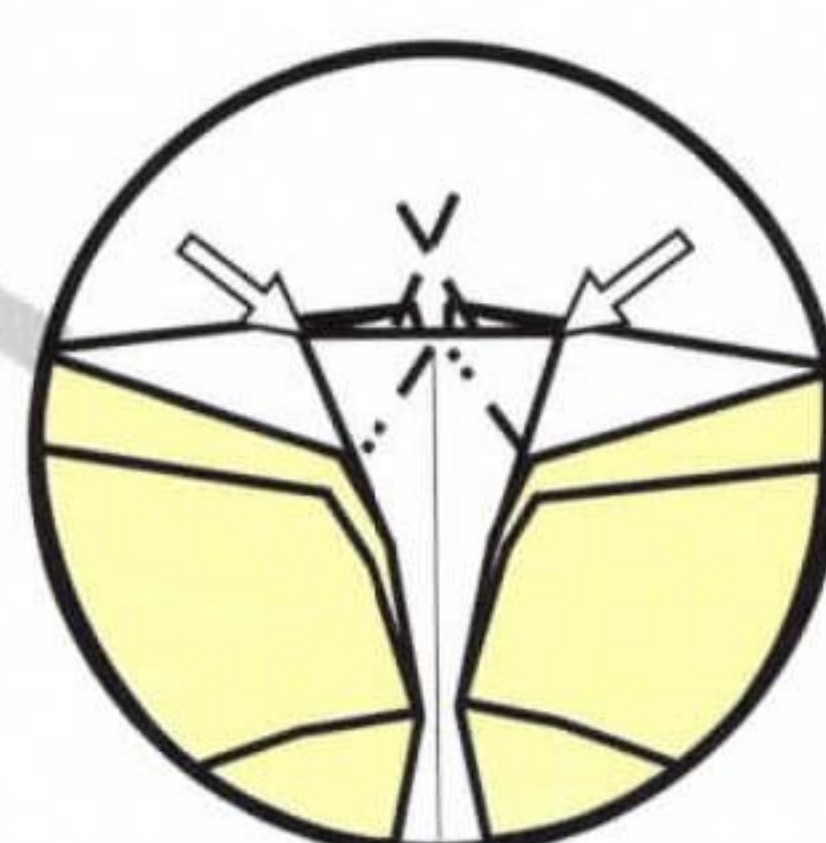
19. Your model should now look like this.



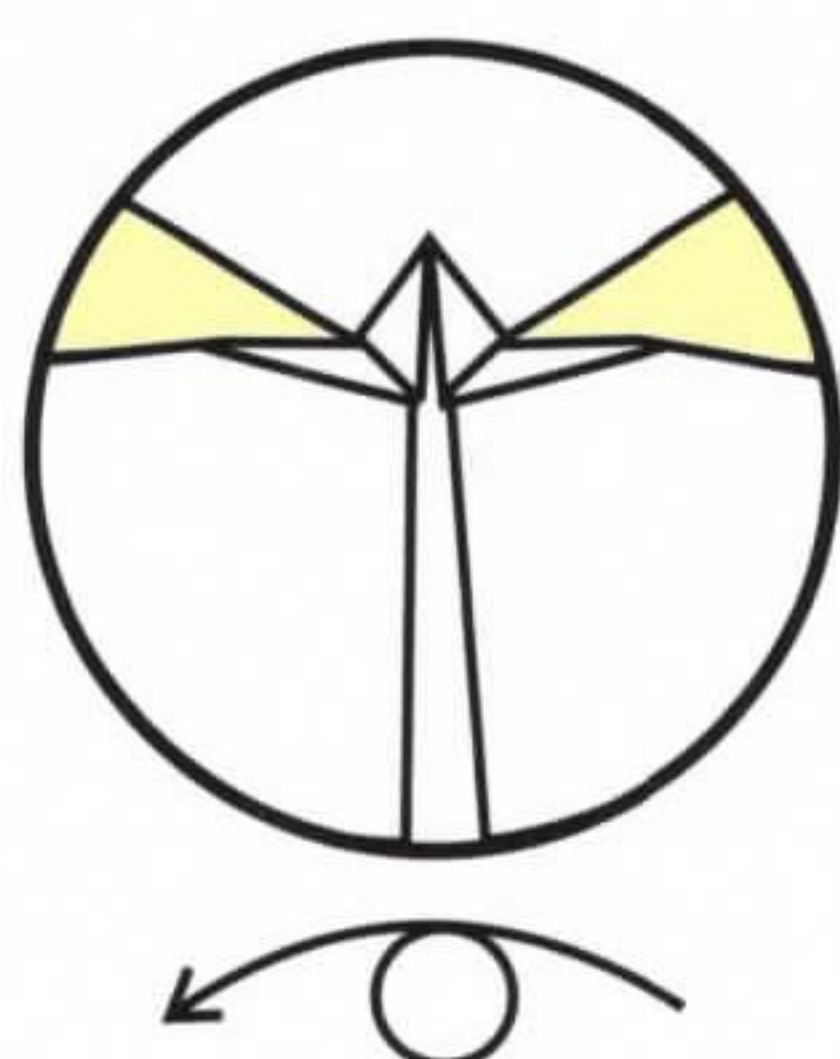
20. Head detail. Squash-fold the center rib in the head area.



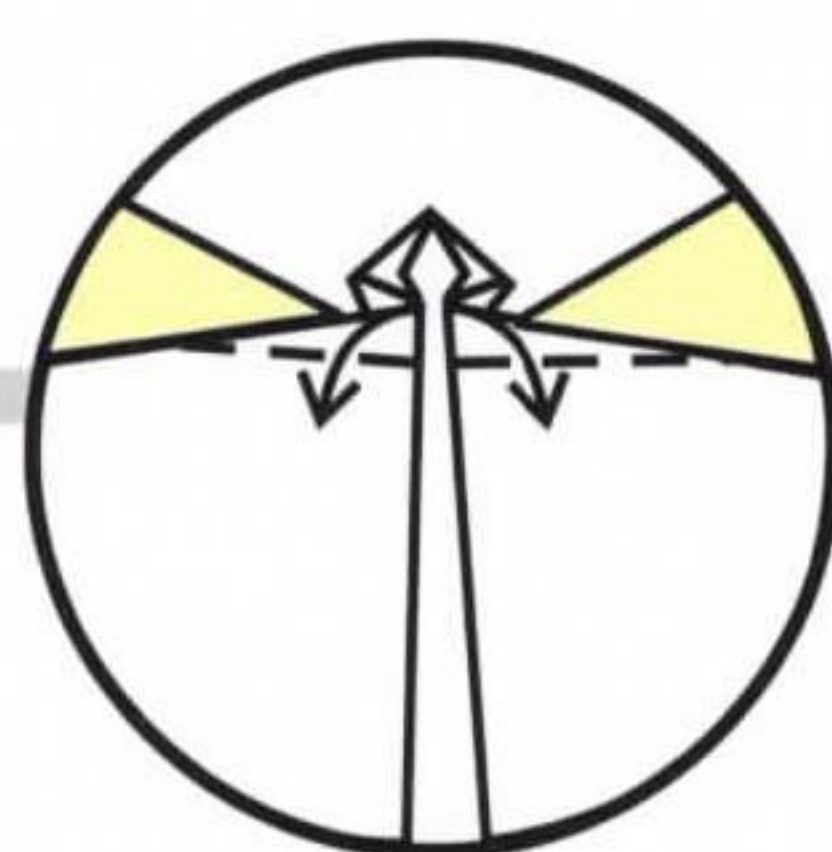
21. Inside-reverse-fold the top corners, left and right.



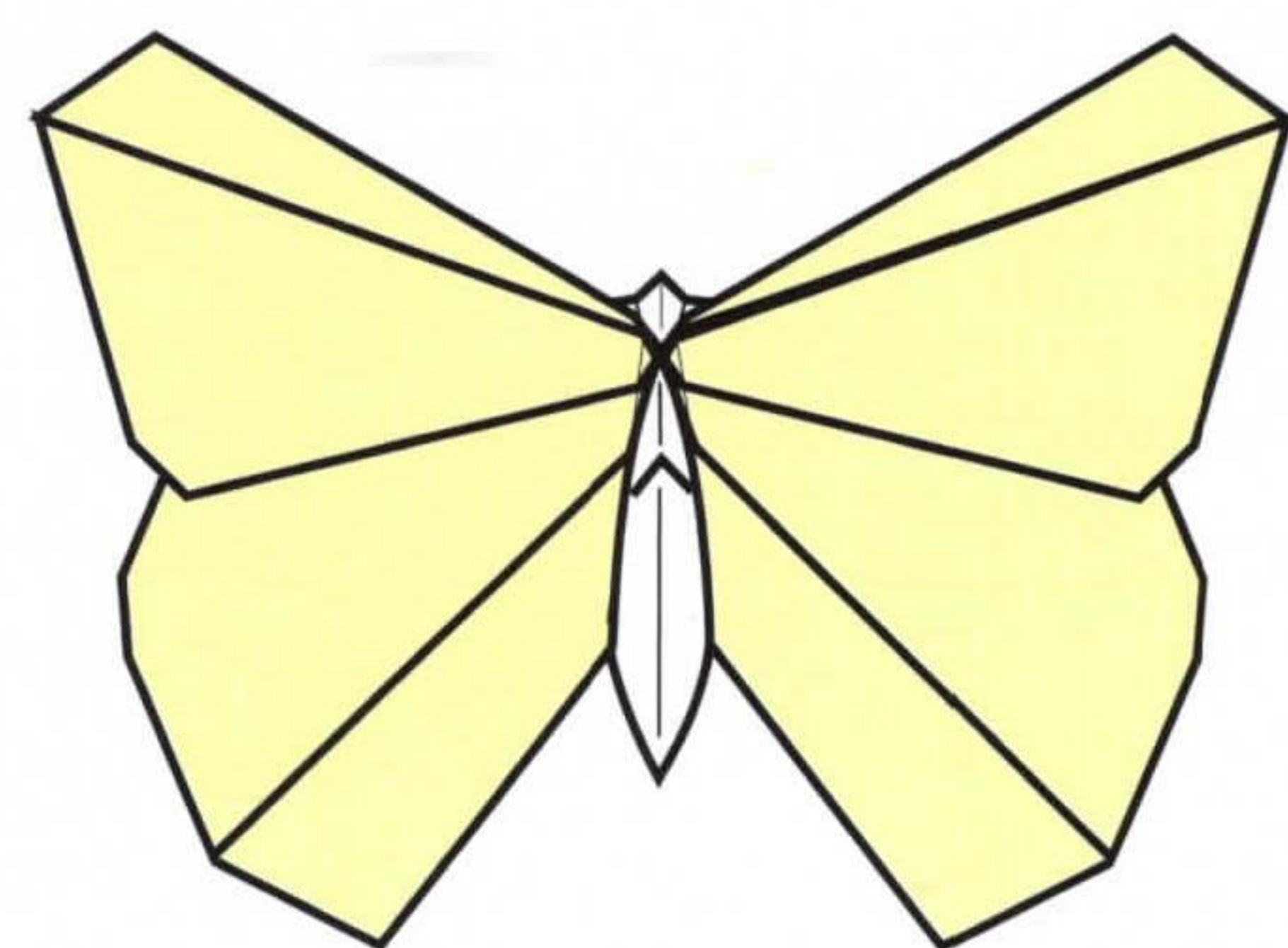
22. Turn over, left to right.



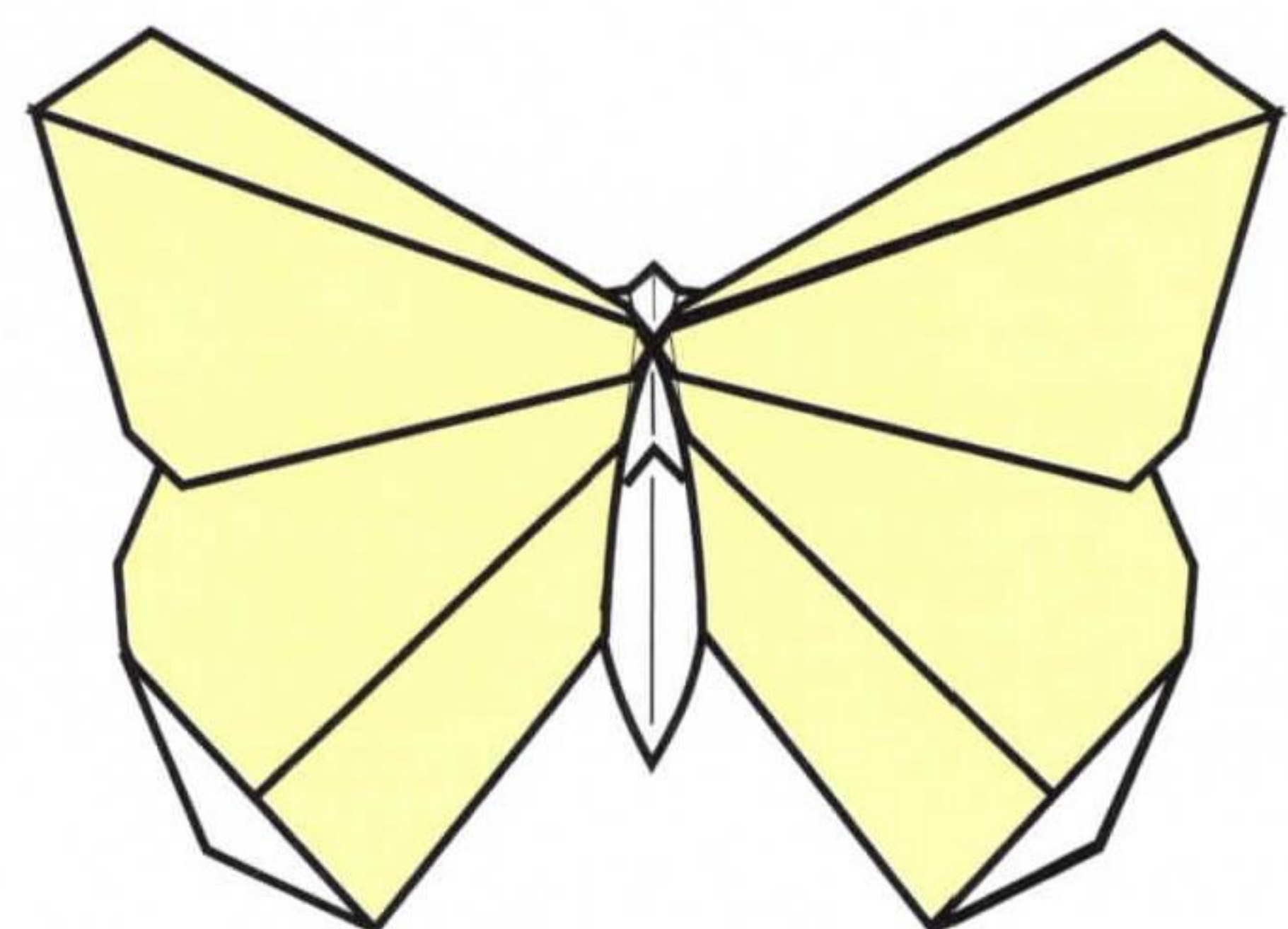
23. Fold the edges down.



24. Turn over, left to right.



25. The finished Origamido Butterfly.



26. This version leaves the triangle layer displayed upon the hind wings.



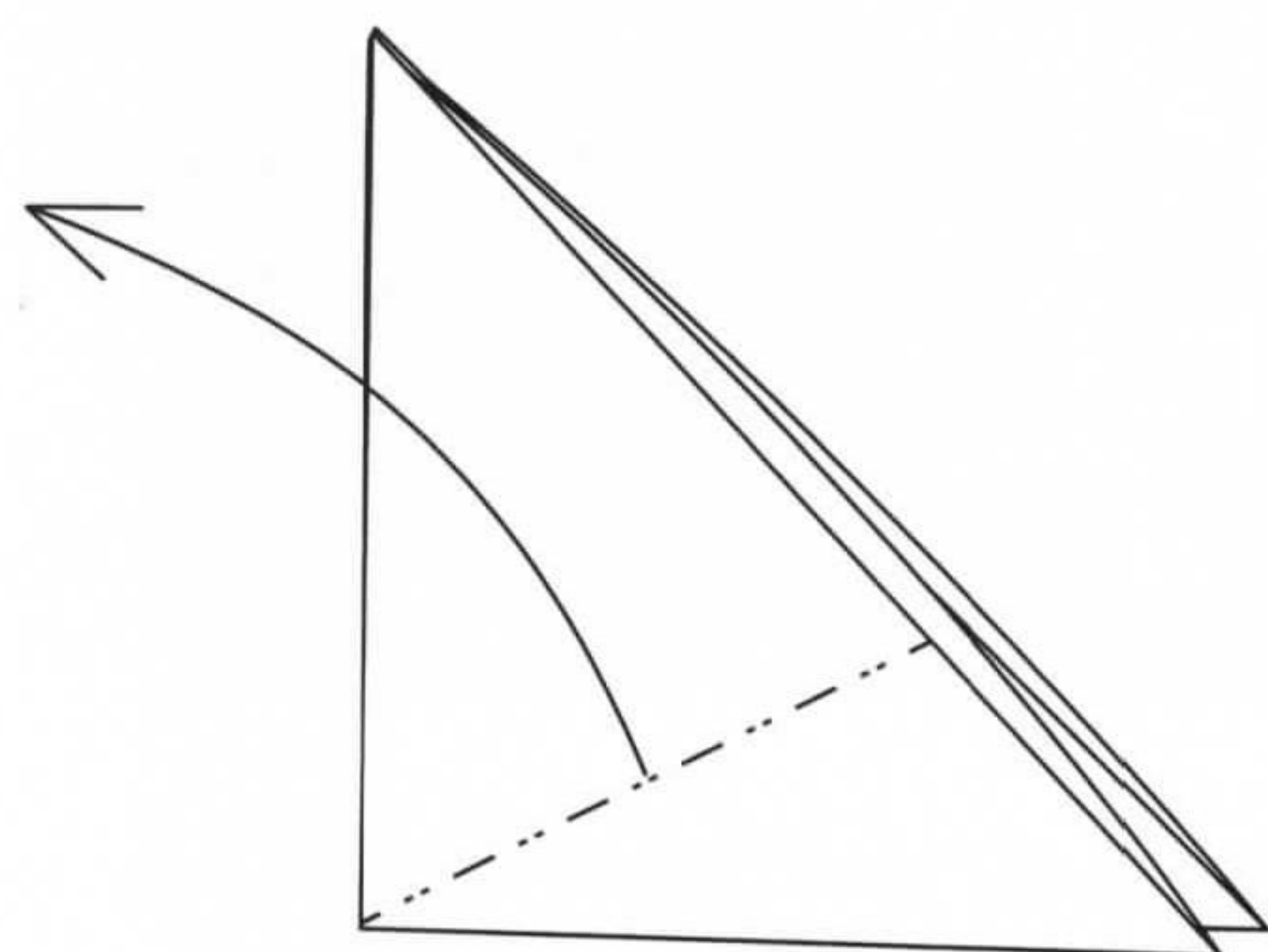
The word koi is an abbreviation from the Japanese description Nishiki Goi, meaning “fish as beautiful as colorful cloth.” Koi are a particular kind of cultivated ornamental carp highly valued for their coloration and markings.

I designed this origami koi in the 1970s, immediately after watching them at a pond for the first time. Their graceful antics still amuse, inspire and relax me and I can watch them for hours. Although I was satisfied with the form of my origami koi, I realized that a color-change origami model would be hideous, and would fail to faithfully capture the magic of these engaging fish. Since koi are primarily valued for their splendid coloration and markings, I actually painted designs on the backs of my first origami models. Then, inspired by the Japanese art of chigiri-e, which uses torn paper to compose pictures resembling watercolor paintings, I applied patches of vibrantly colored handmade papers to my later origami koi. I designed this model to be viewed from above, just as if you were looking down through the water at them, gazing into the pond from a stepping stone.

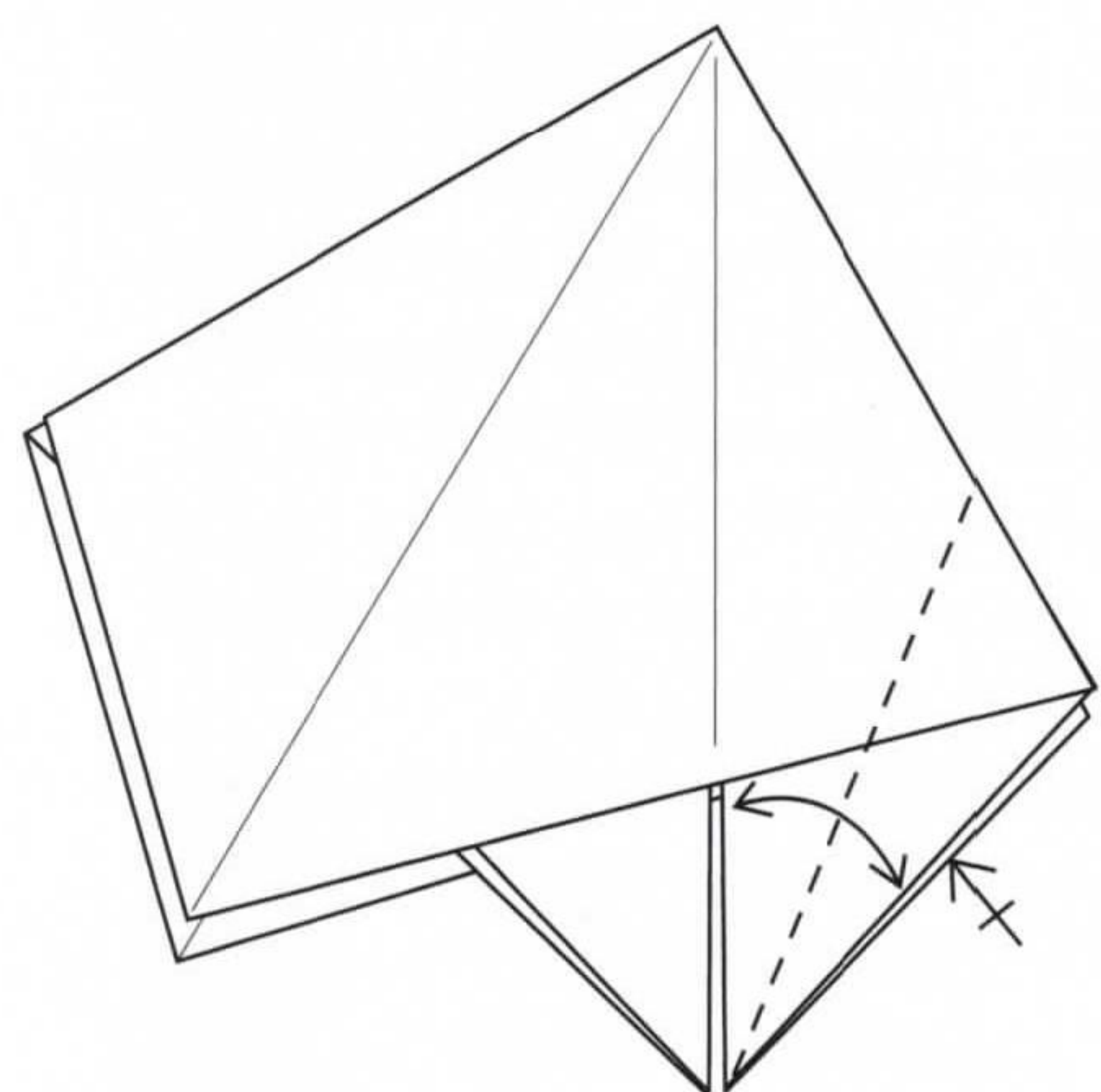
At the Origamido Studio, our panels with koi have been some of the most popular pieces of art. We often arrange a small group of these origami fish to represent their gregarious social behavior. The versatility of combining origami and chigiri-e has also allowed us to work from photos sent to us by koi fanciers. We represent the actual prize-winning, brightly colored koi in origami, mounted on background panels of gampi—decorative handmade paper, pressed with inclusions of coarse vegetation strands.

PAPER SUGGESTIONS

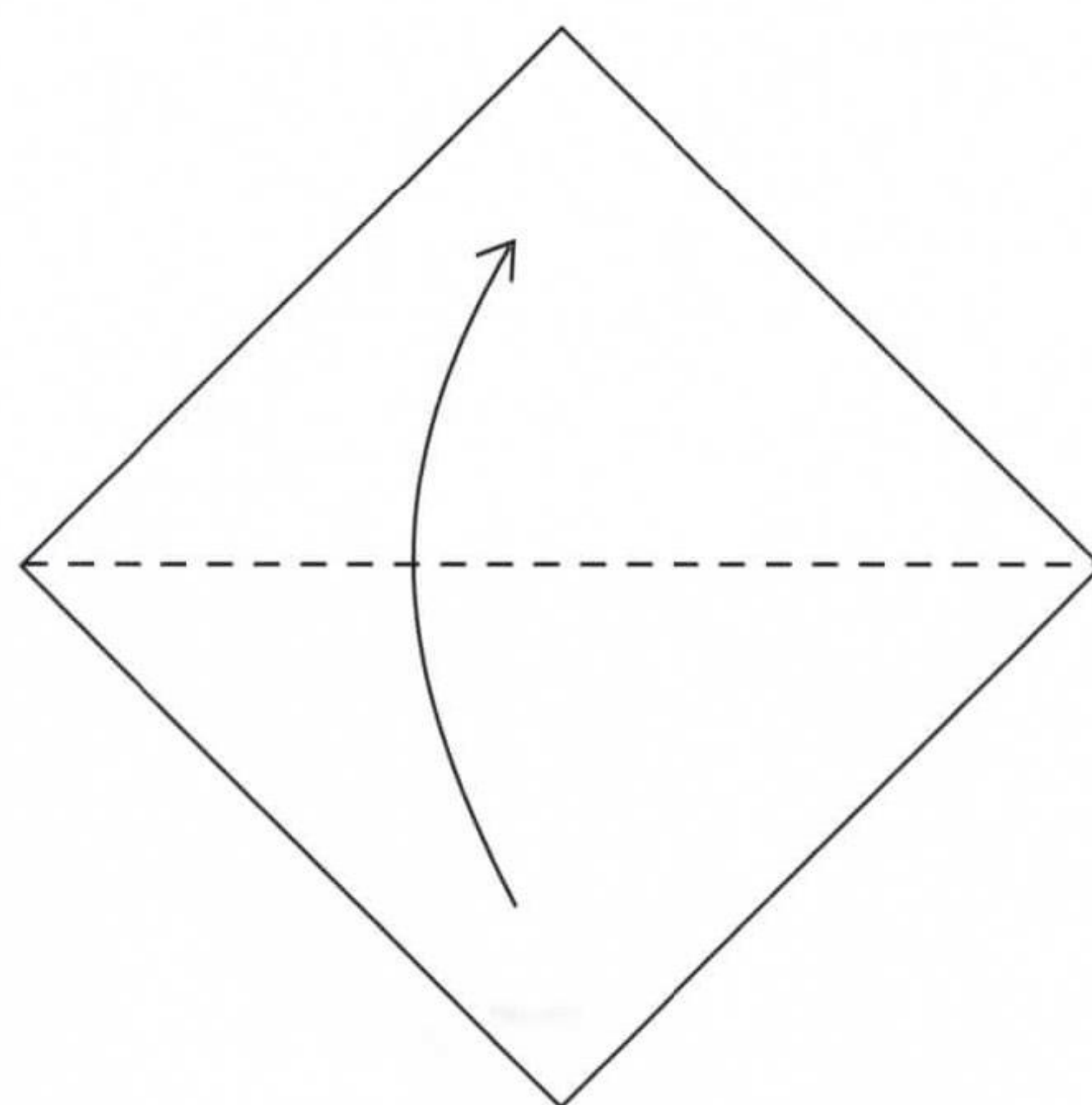
For best results, use a bright, white, 100 percent cotton cold-pressed water-color paper. It should be lightweight, only up to 140 lb. Cut it square, from 12 to 20 inches (30.5 to 50 cm). Your koi will be 60 percent as long as the side of the square you choose. Pulp appliques can be torn pieces of hand-made papers. Red and black are traditional. To paste them on the finished model, use a light mist of water to dampen both sides of the paper. Brush the droplets into each of the paper's surfaces evenly. Do not brush the paper too hard since this will change the surface texture. Apply paste sparingly and place the shapes on the back of the koi.



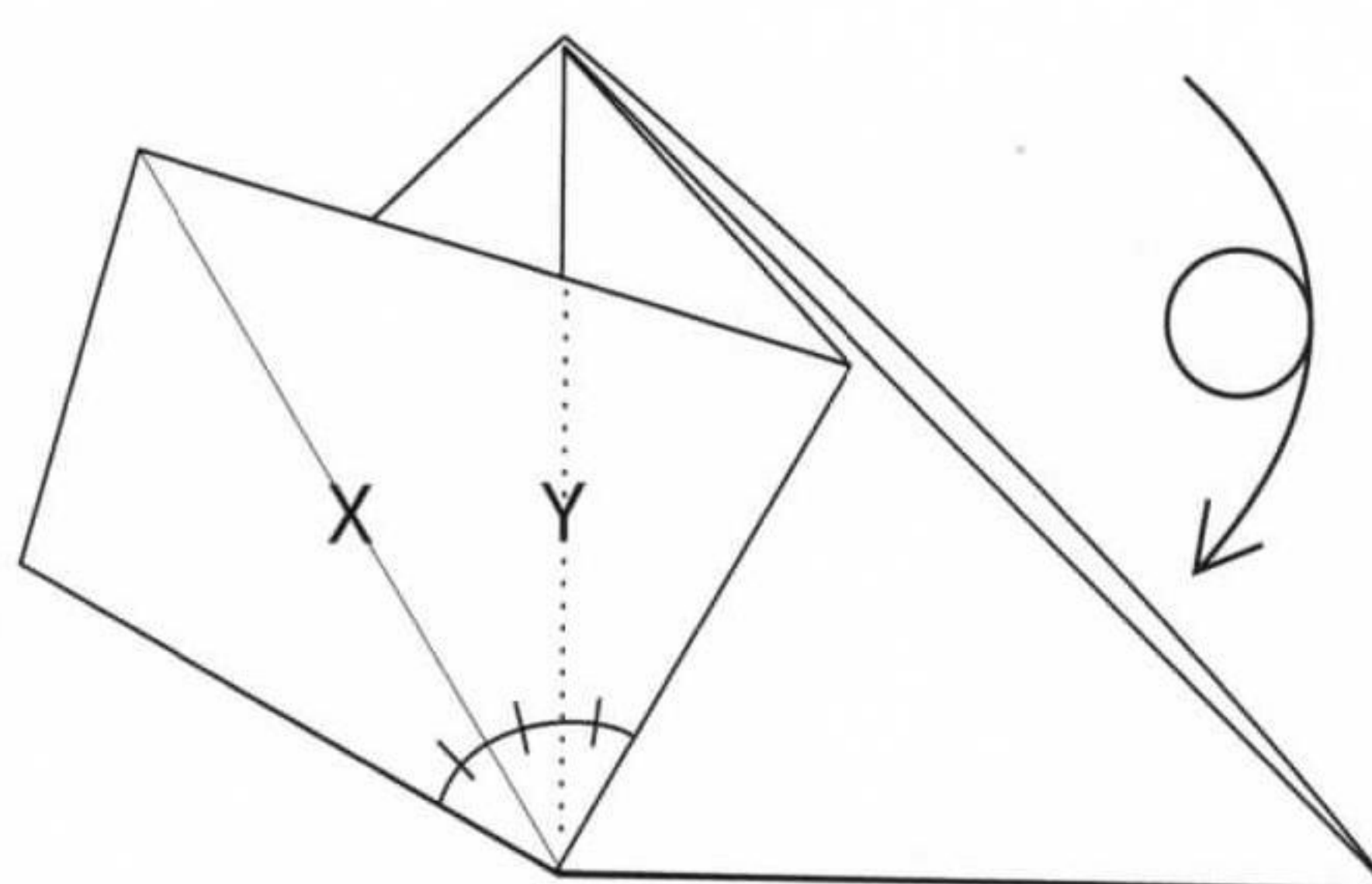
3. Swivel and squash to form a flap with three equal segments. The layer beneath will help you adjust the thirds.



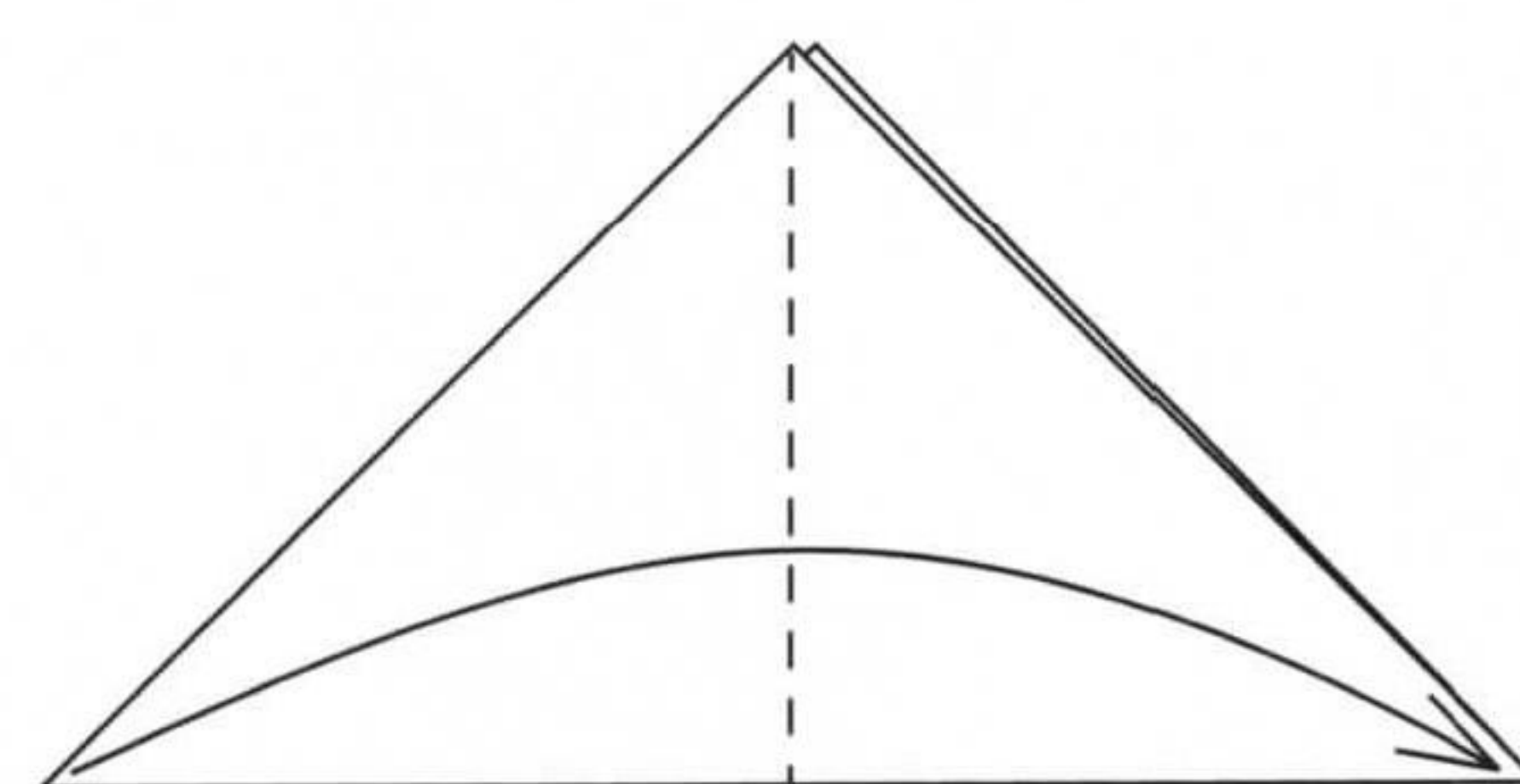
6. Fold and unfold the top right edge to the center. Repeat on the back.



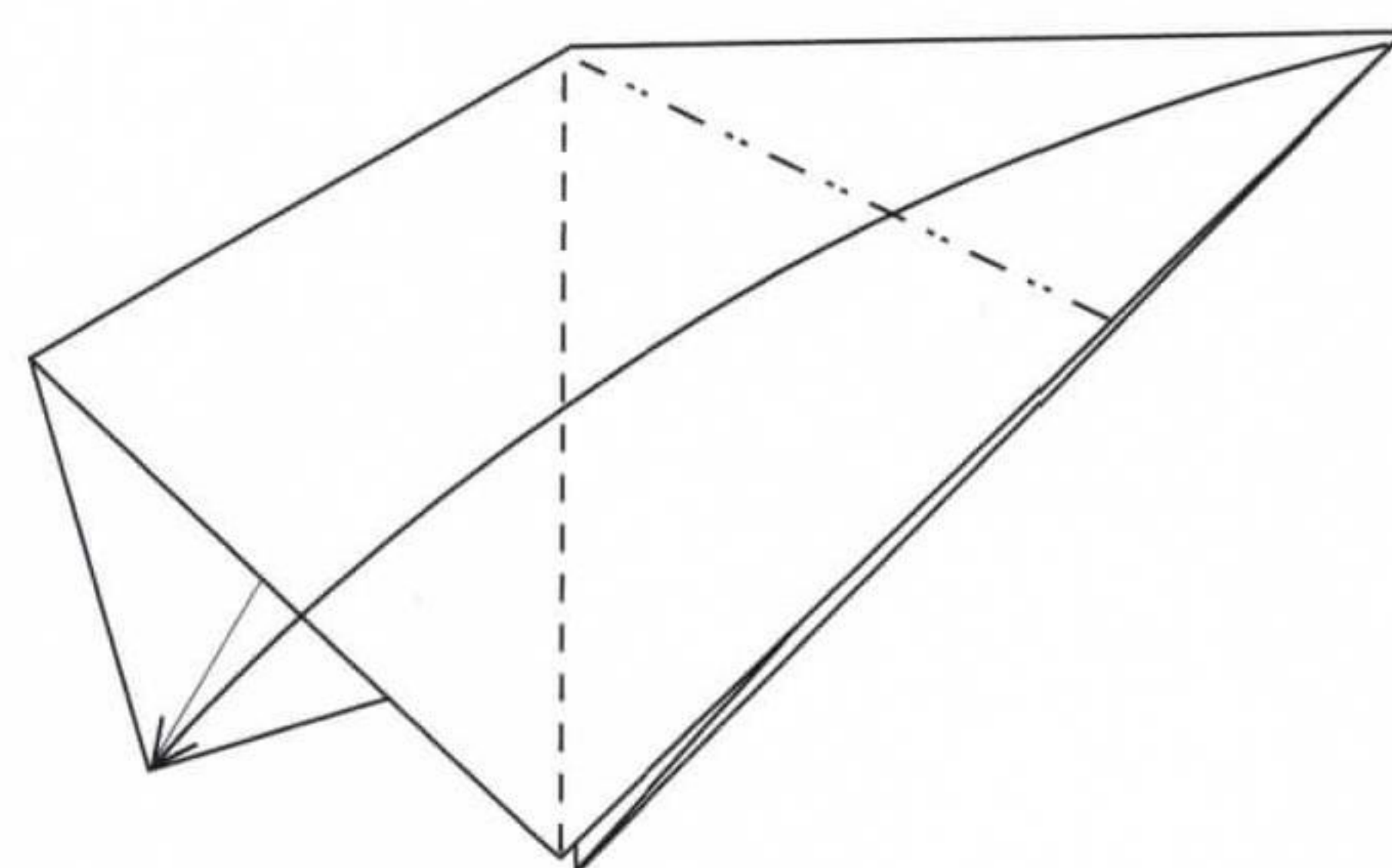
1. Fold in half, corner to corner.



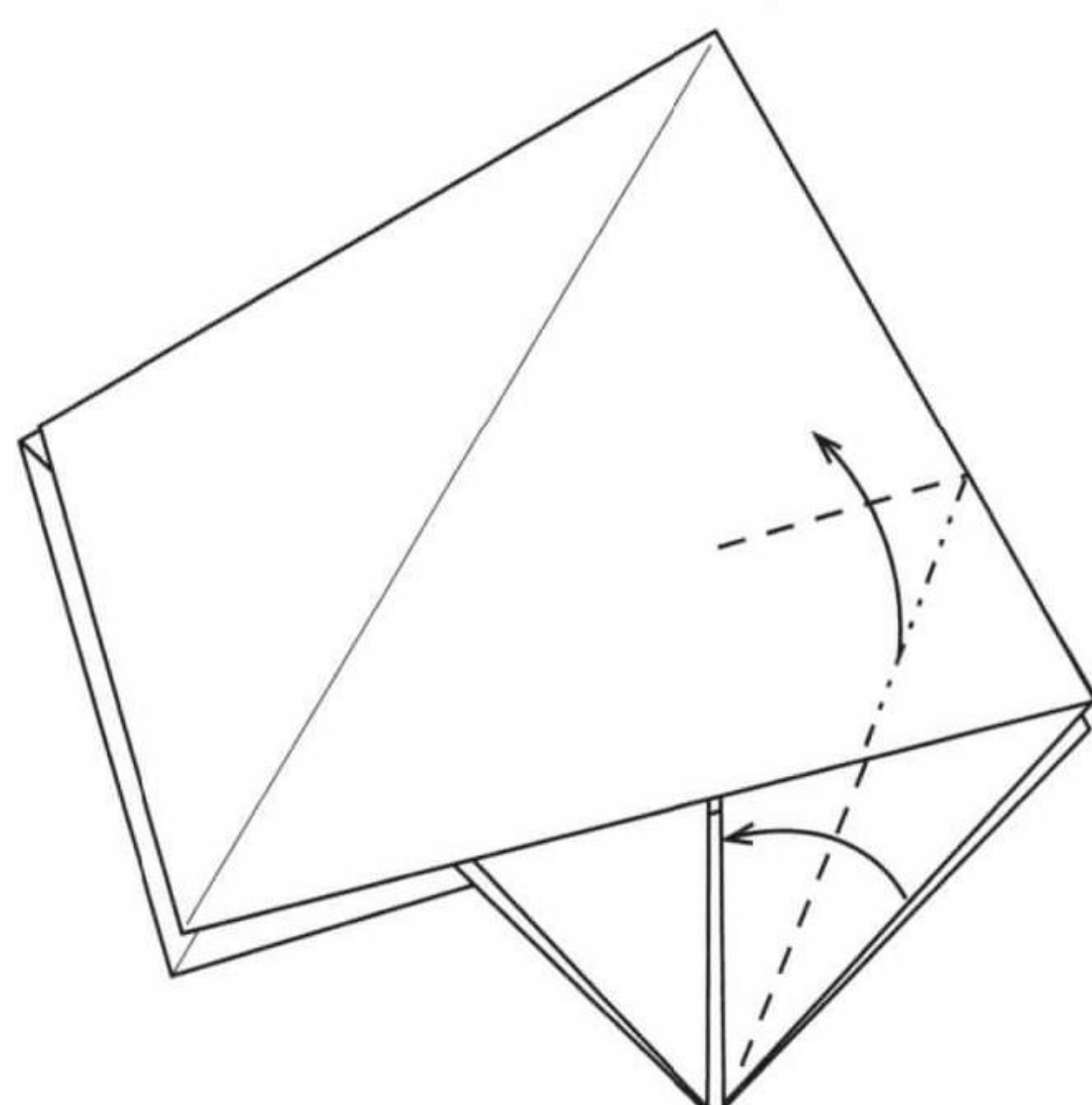
4. Check by folding at "X," which should bring the right edge over the hidden line "Y." Adjust if necessary. Turn the paper over, top to bottom.



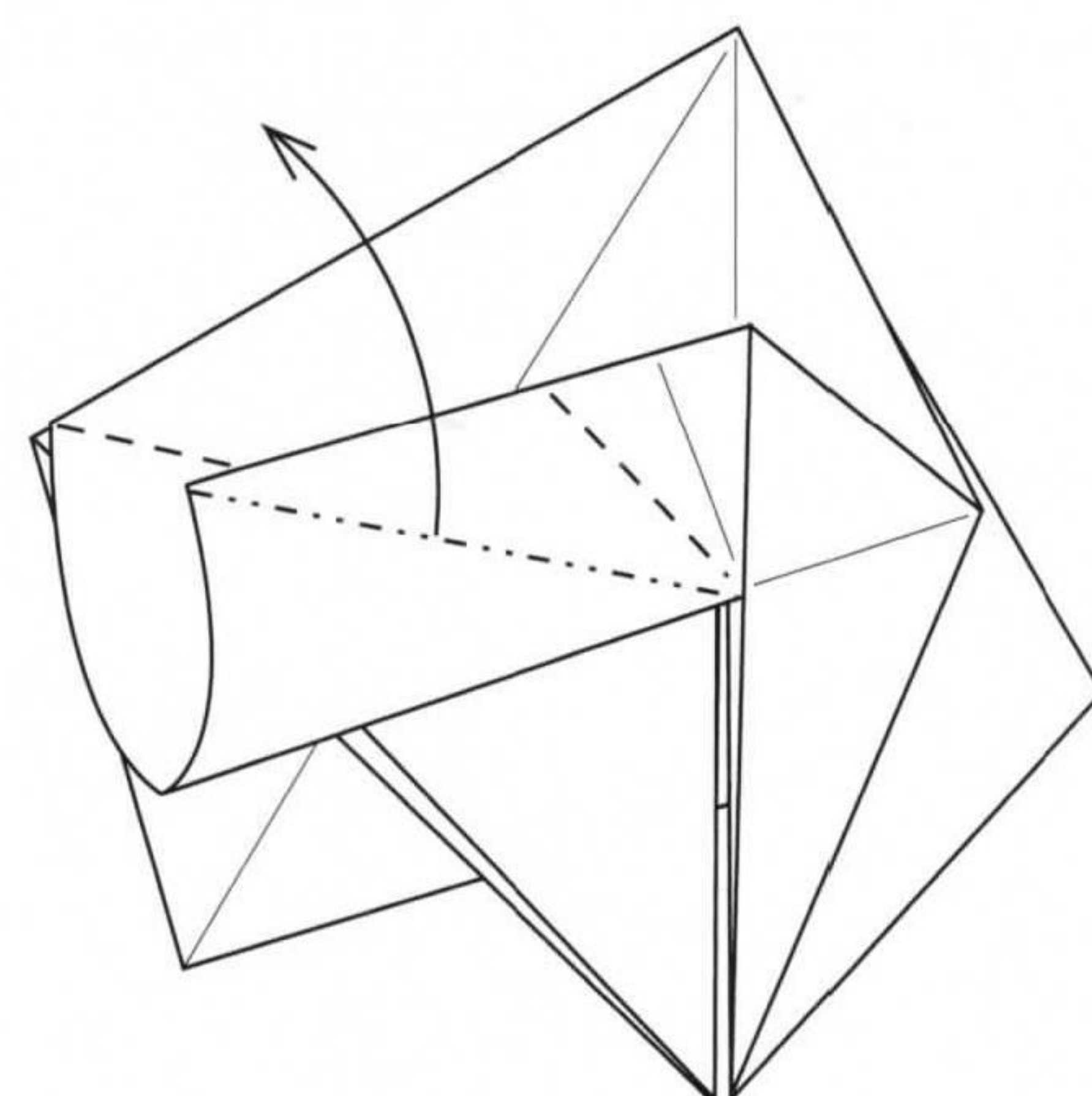
2. Fold the triangle in half, corner to corner.



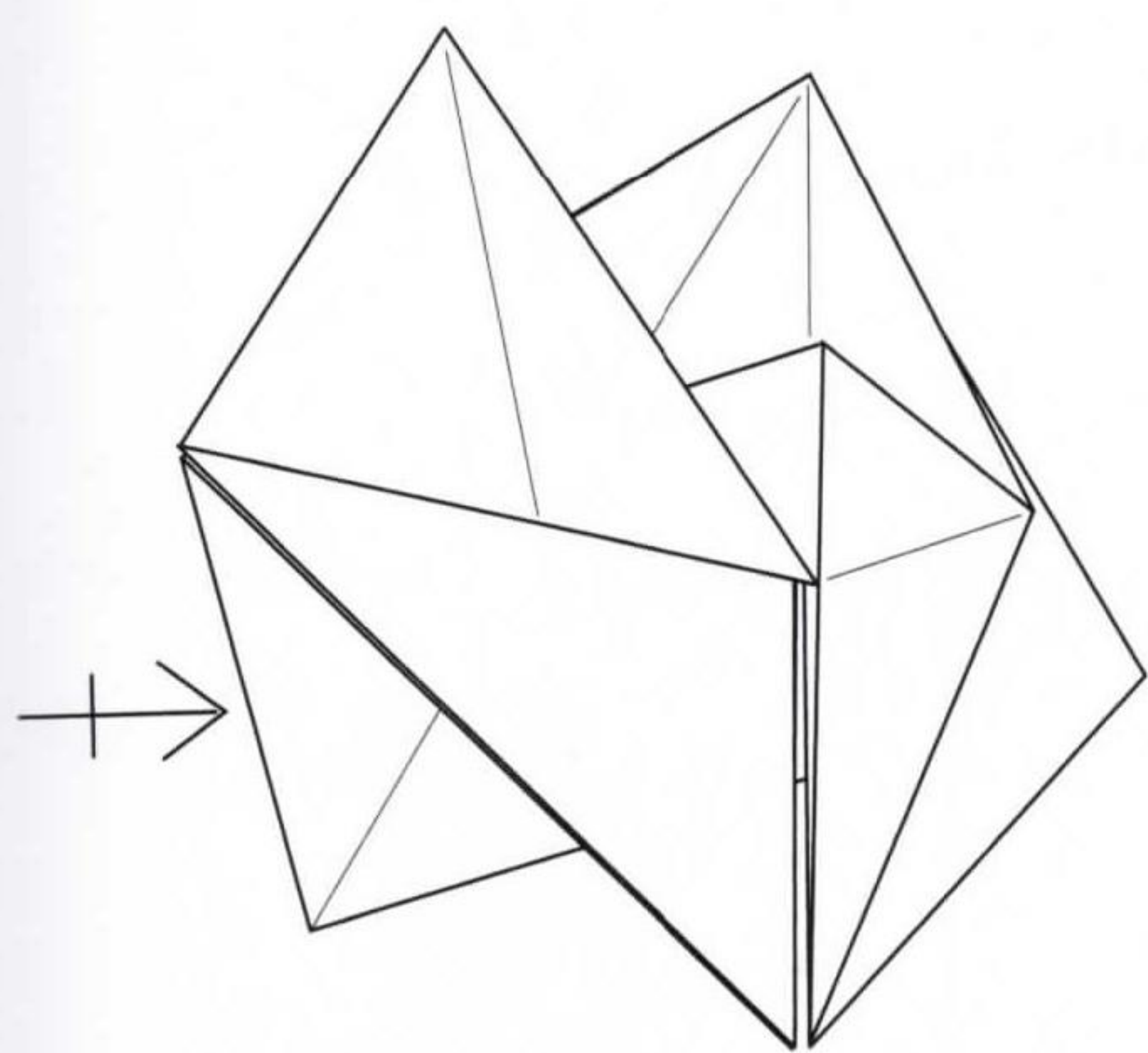
5. Repeat the same folding process on the other side. (If you are wet-folding, don't expect the paper's points to match.)



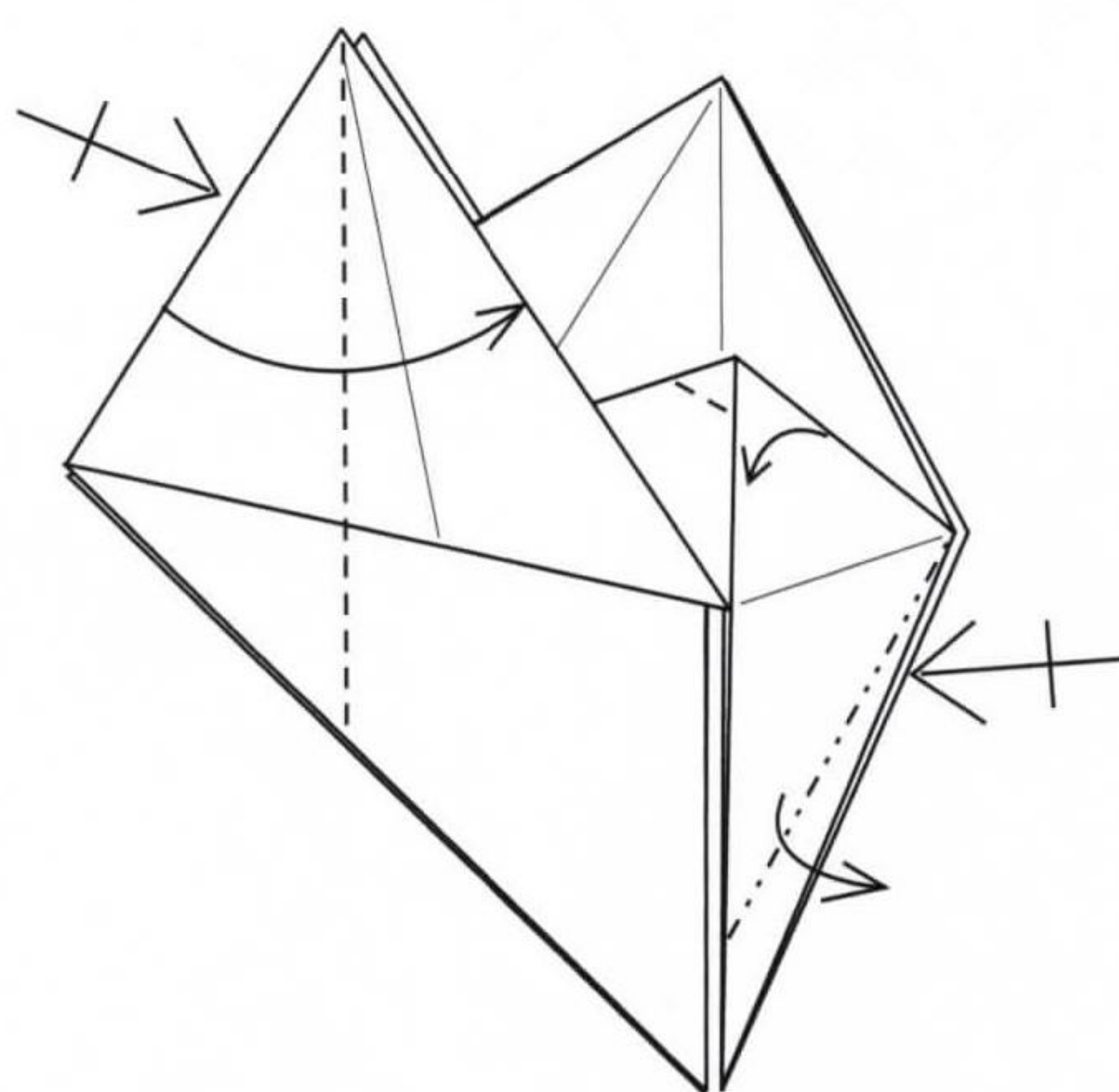
7. Move the right side of the top layer up while bringing the bottom right edge of the second layer to the vertical folded edge. Flatten the top layer only to the right of the centerline.



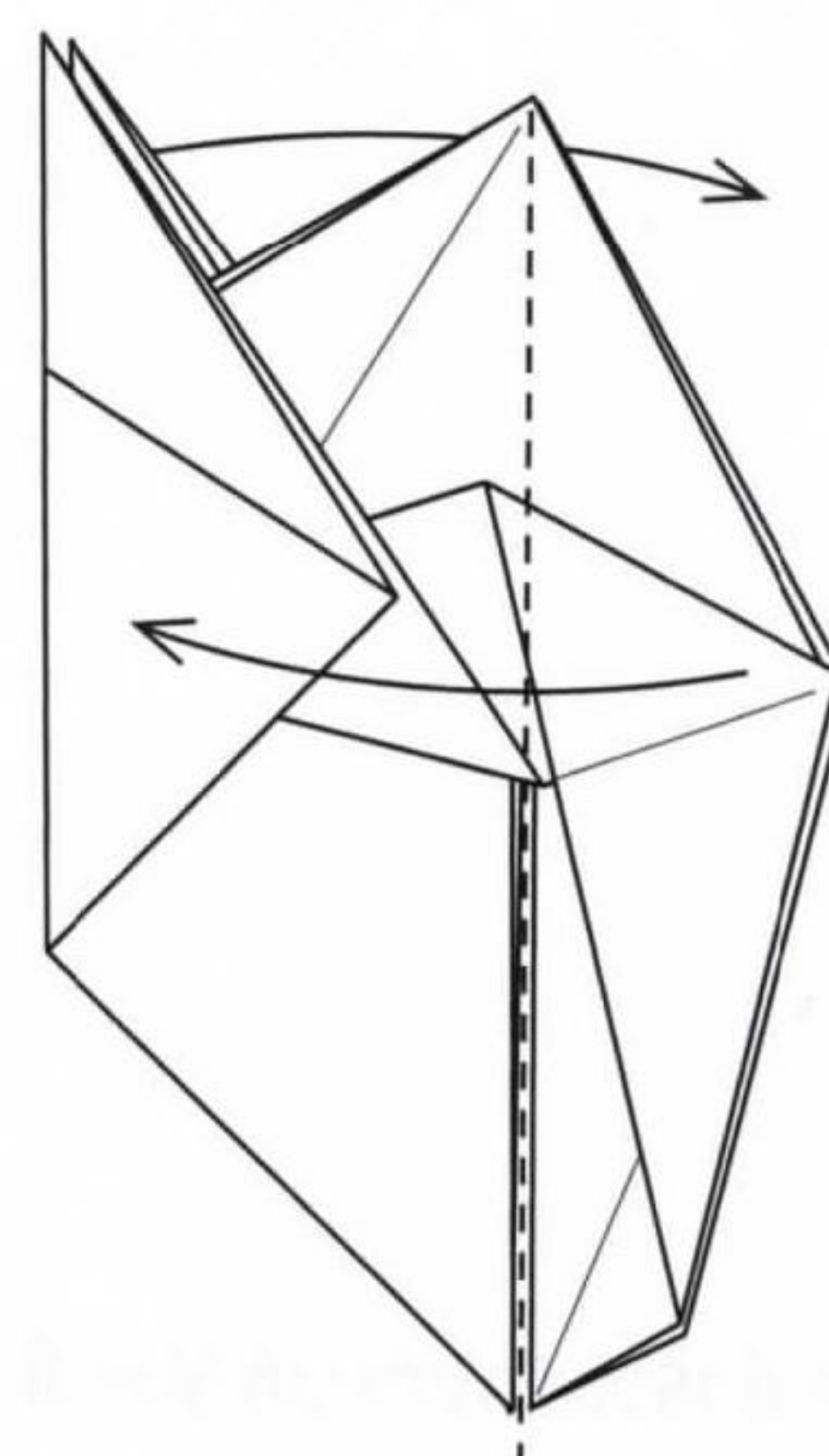
8. Form a mountain crease from the corner of the top left flap to the center of the paper. Swivel the flap up and flatten.



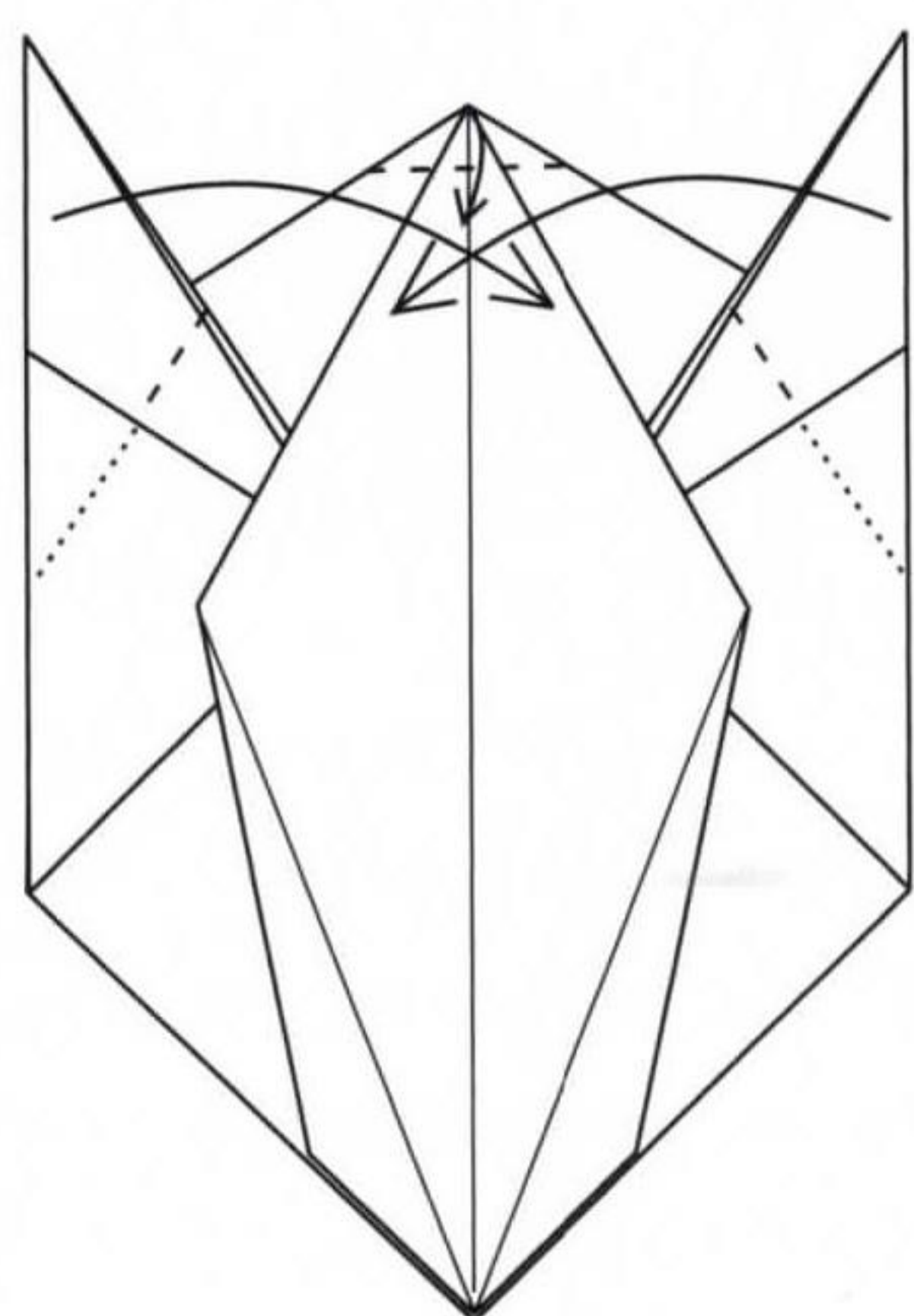
9. Repeat steps 7 and 8 on the other side.



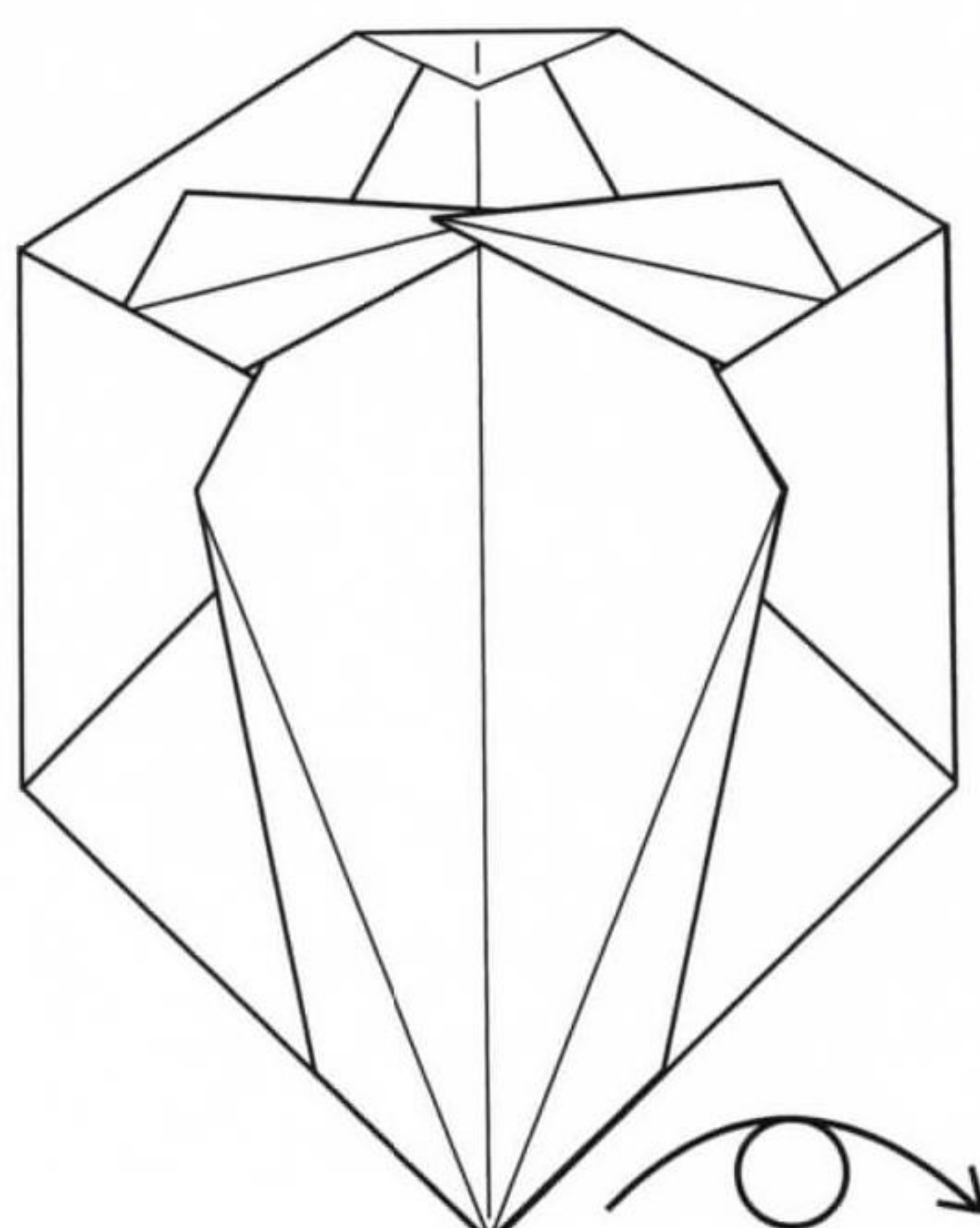
10. Valley-fold the left edge. Repeat on the back. Swivel the top right layer down and to the right. Repeat behind.



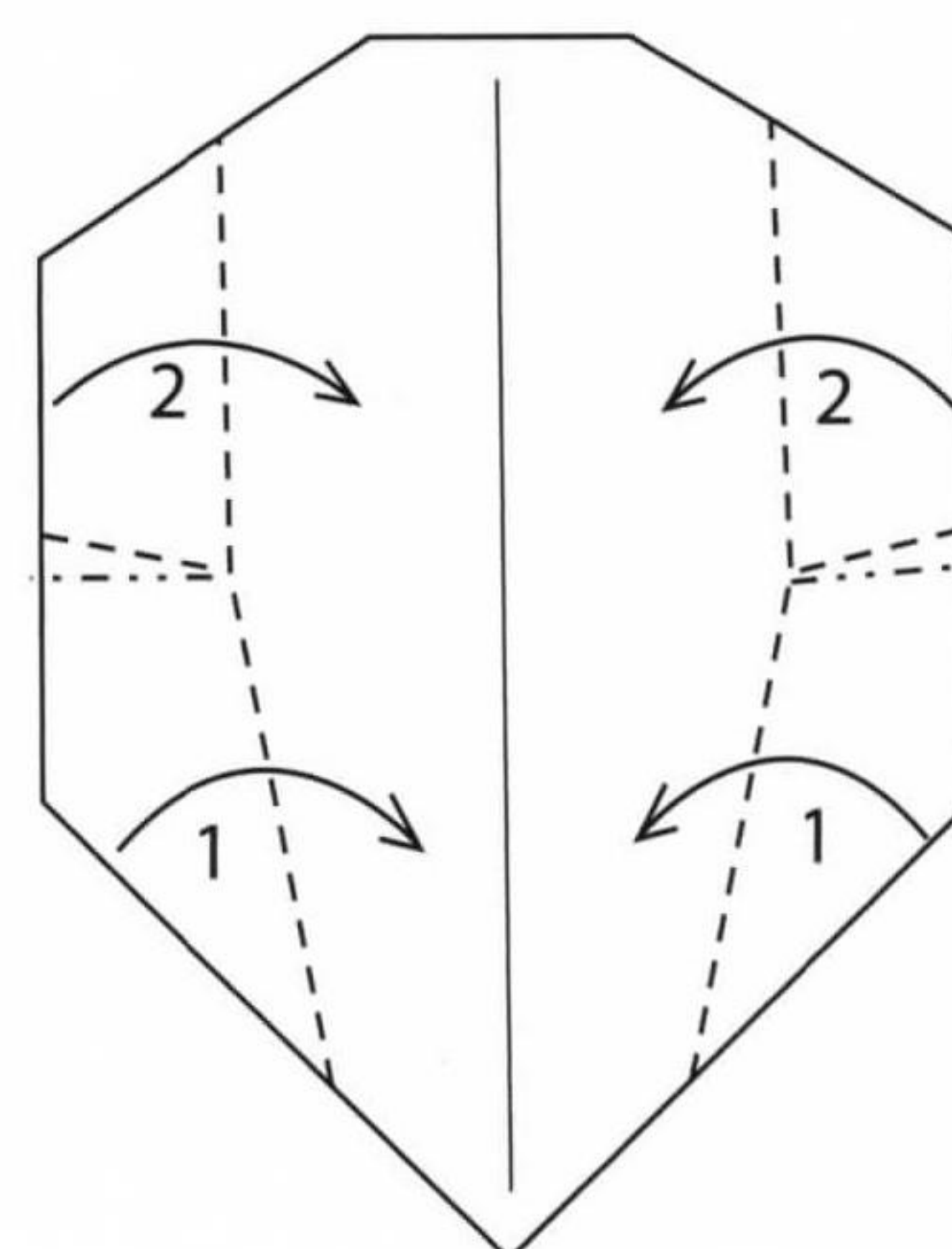
11. Rearrange the layers as follows: top right to the left and back left to the right.



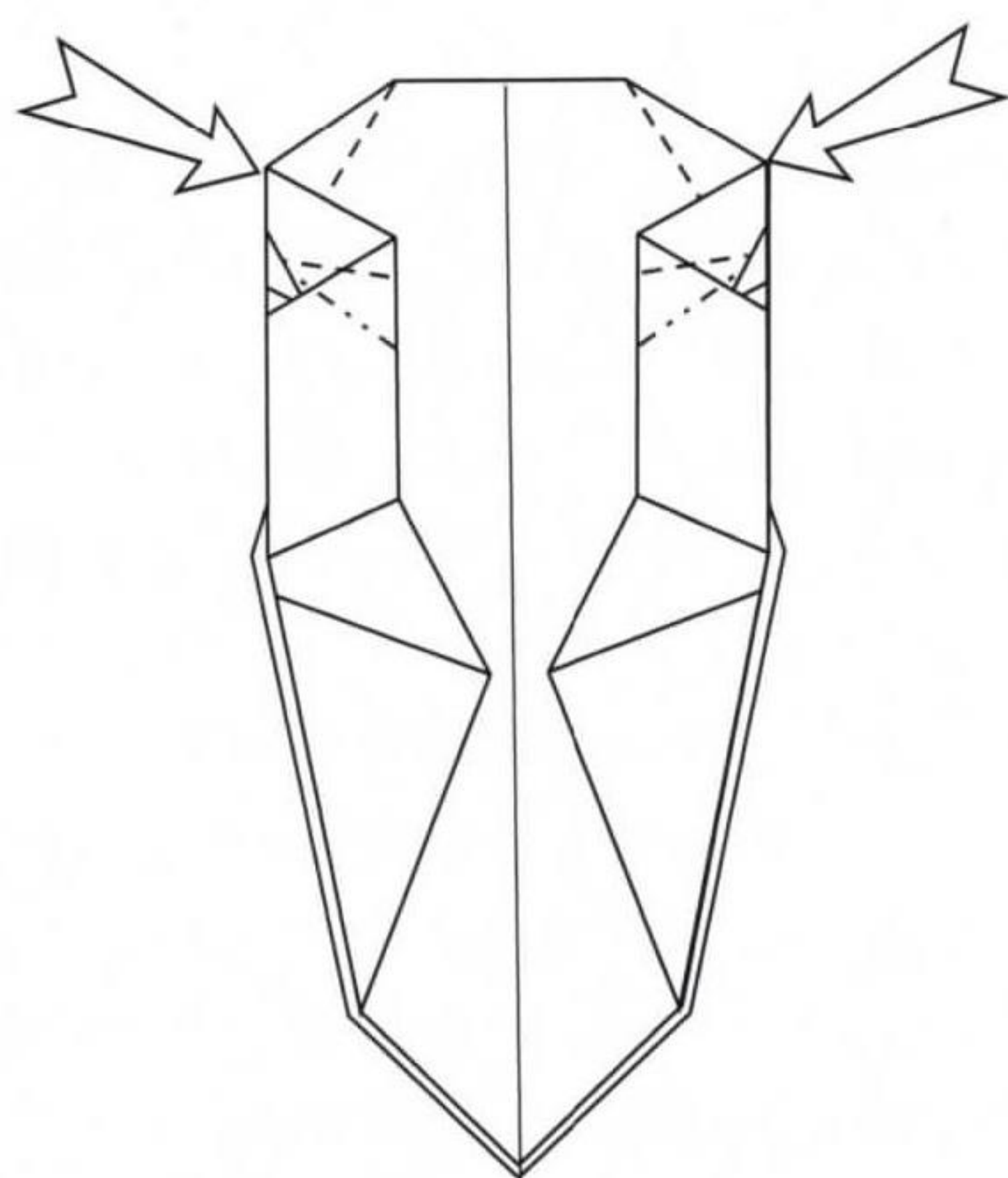
12. Your paper should look like this. Fold the top corners over so they cross. Notice that the fold continues under the covering layer at the base of each point.



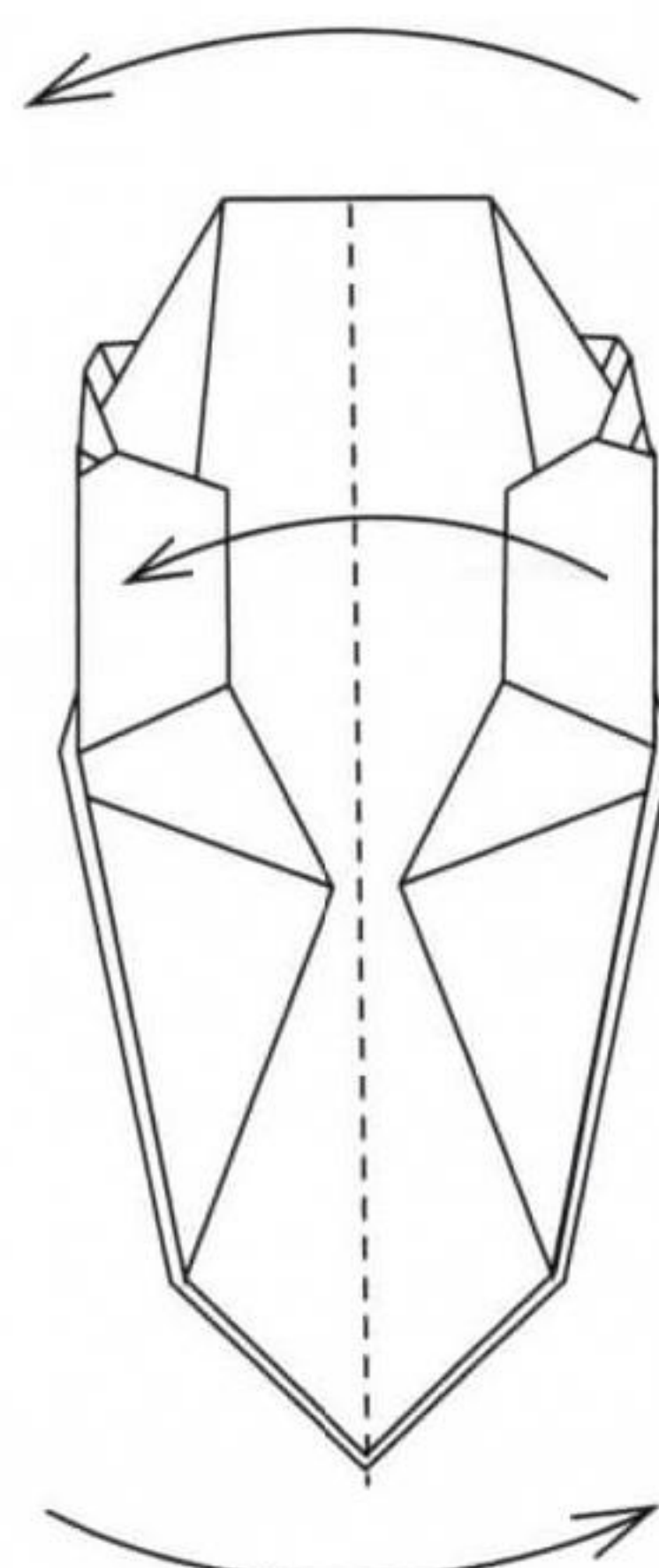
13. Turn the model over, left to right.



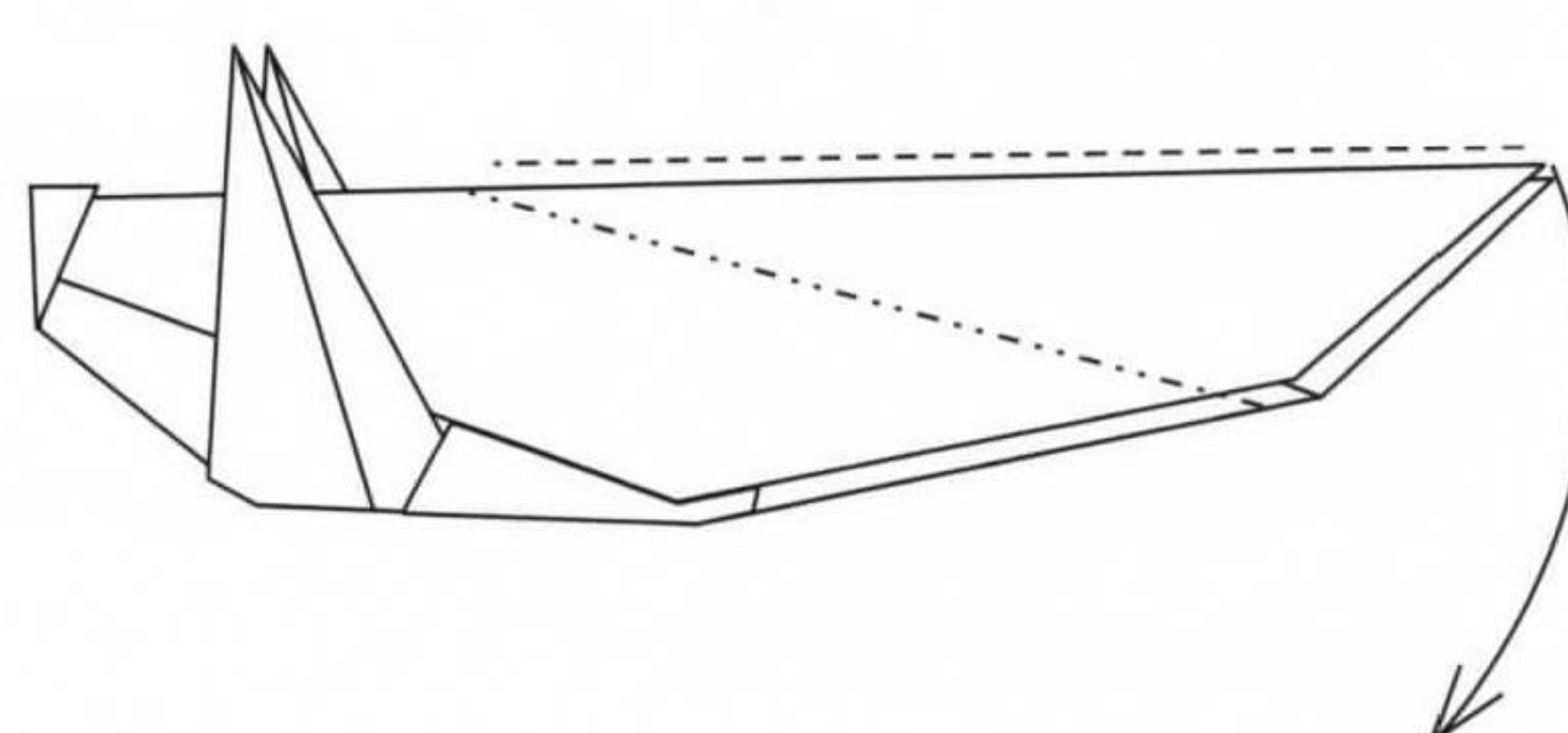
14. Fold in the lower side edges, then fold in the upper sides, forming a crimp between each upper and lower side.



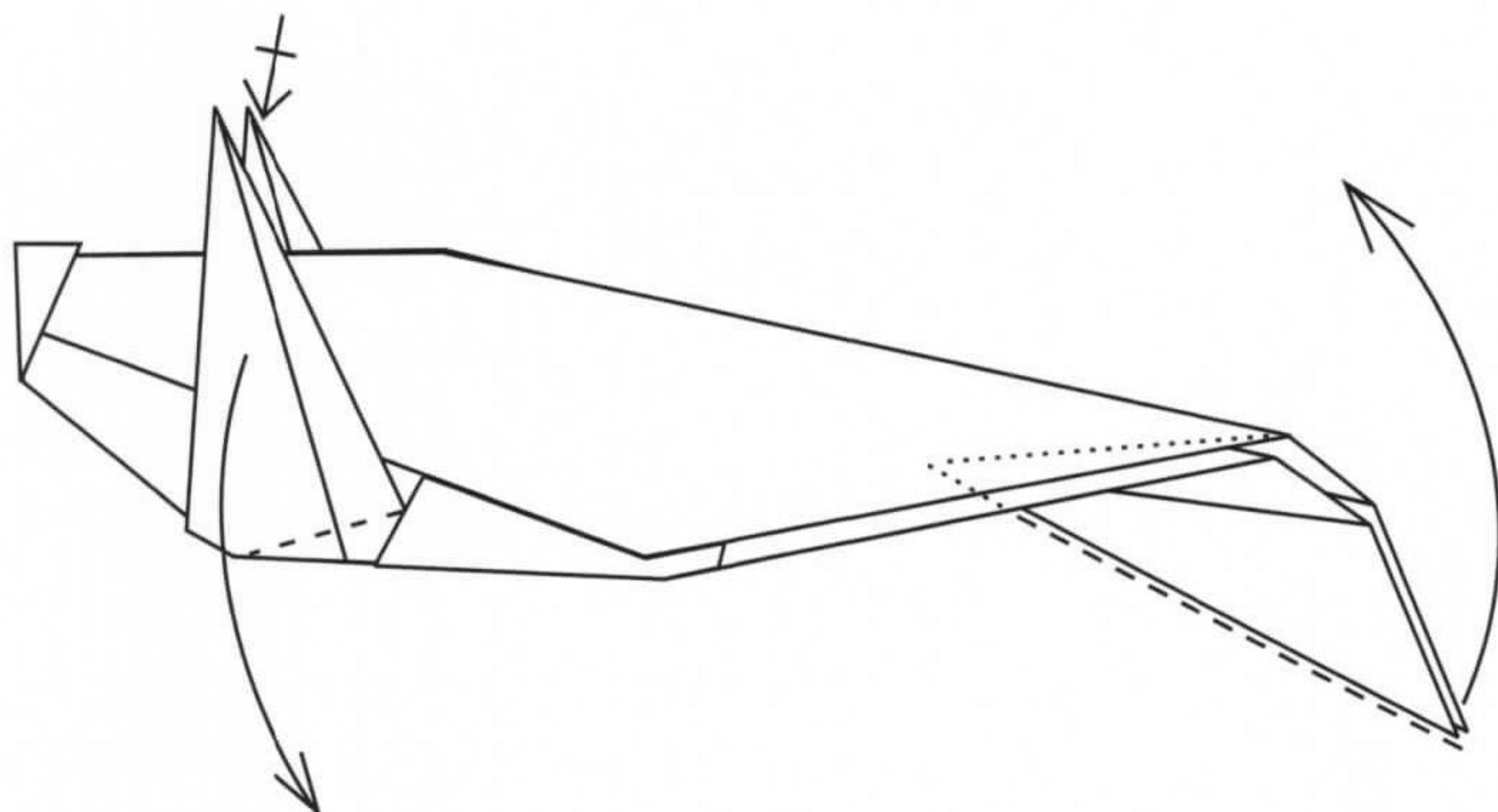
15. Narrow the front with an inside-reverse fold on each corner.



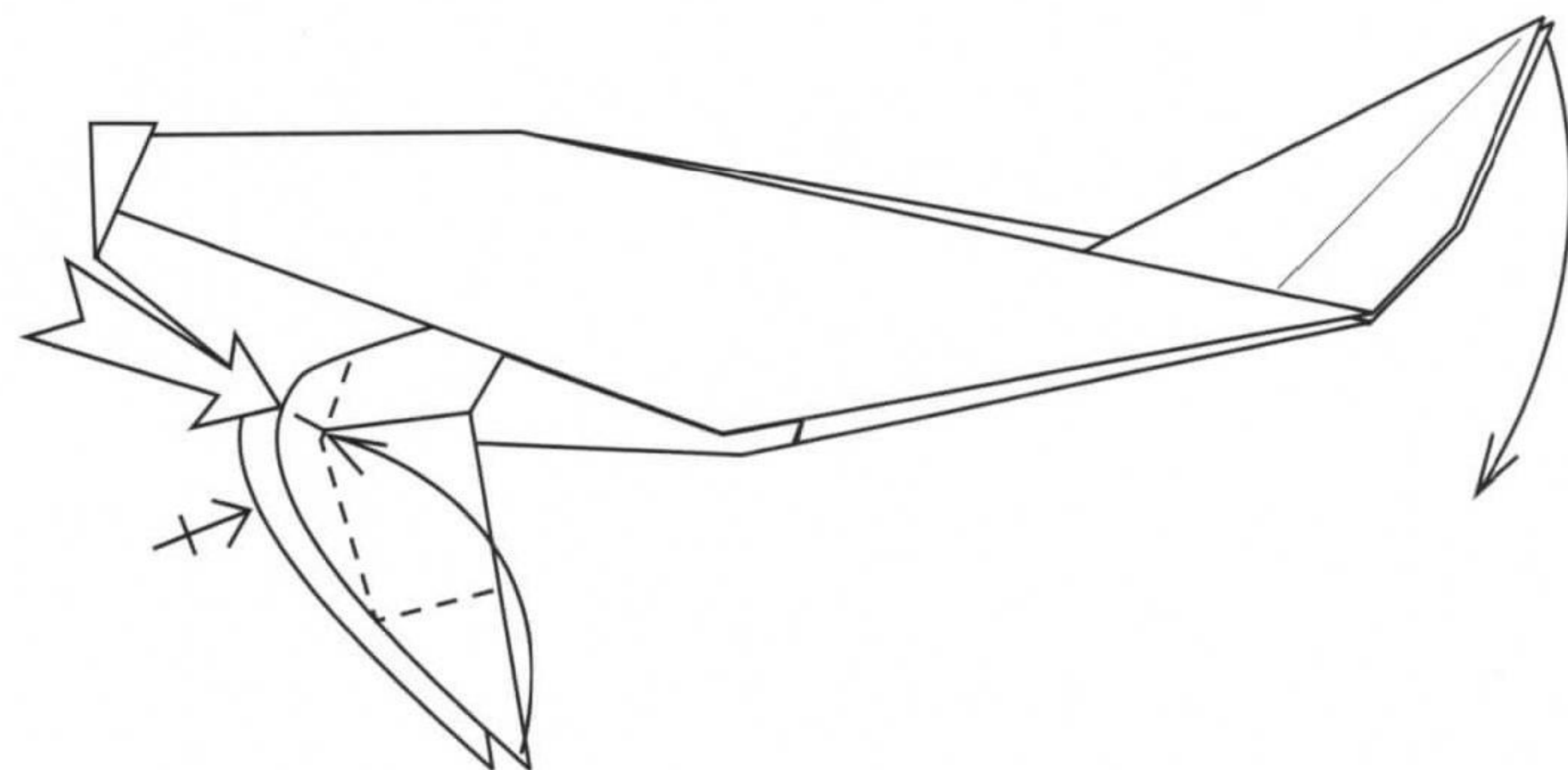
16. Fold in half and rotate the top to the left.



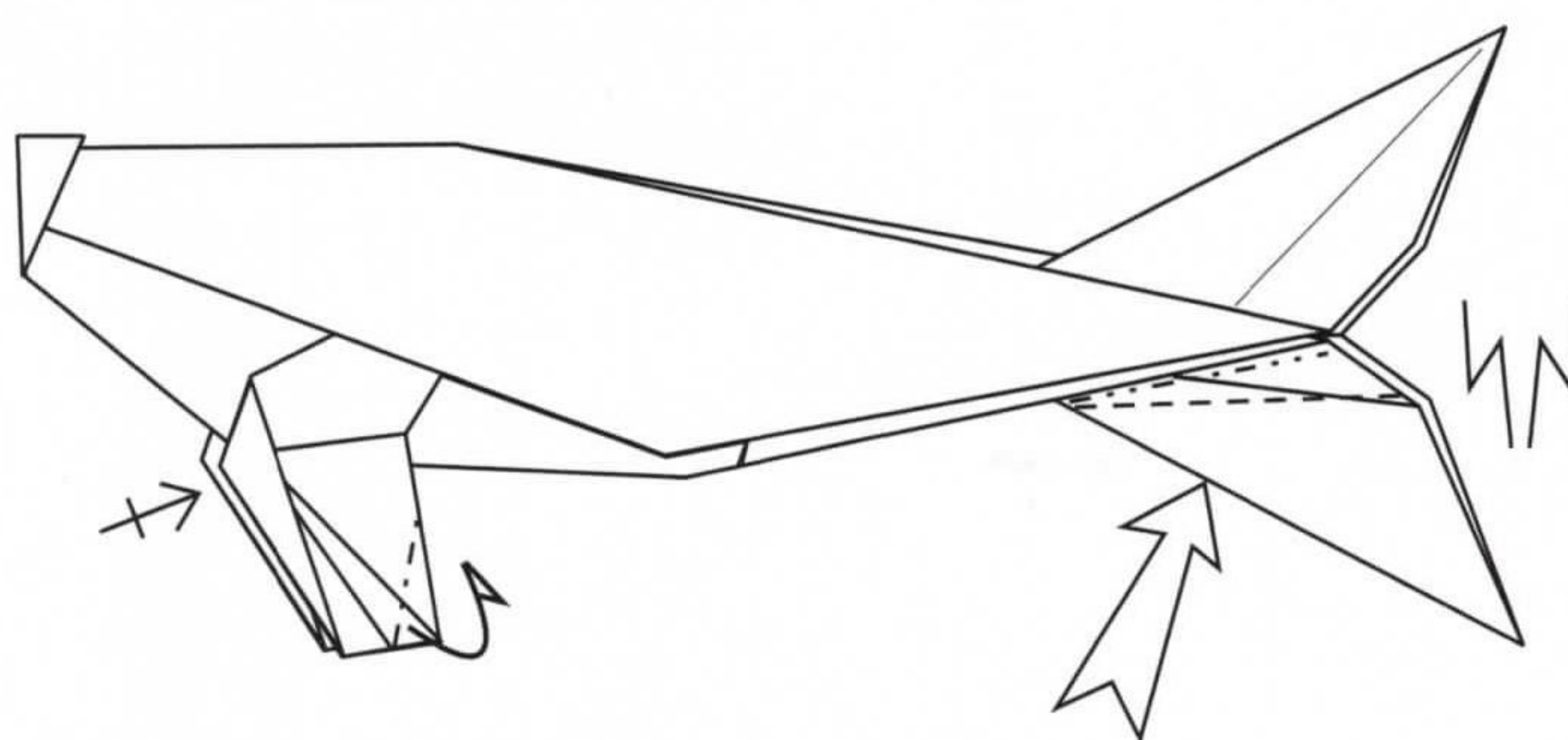
17. Inside-reverse-fold the tail layers downward.



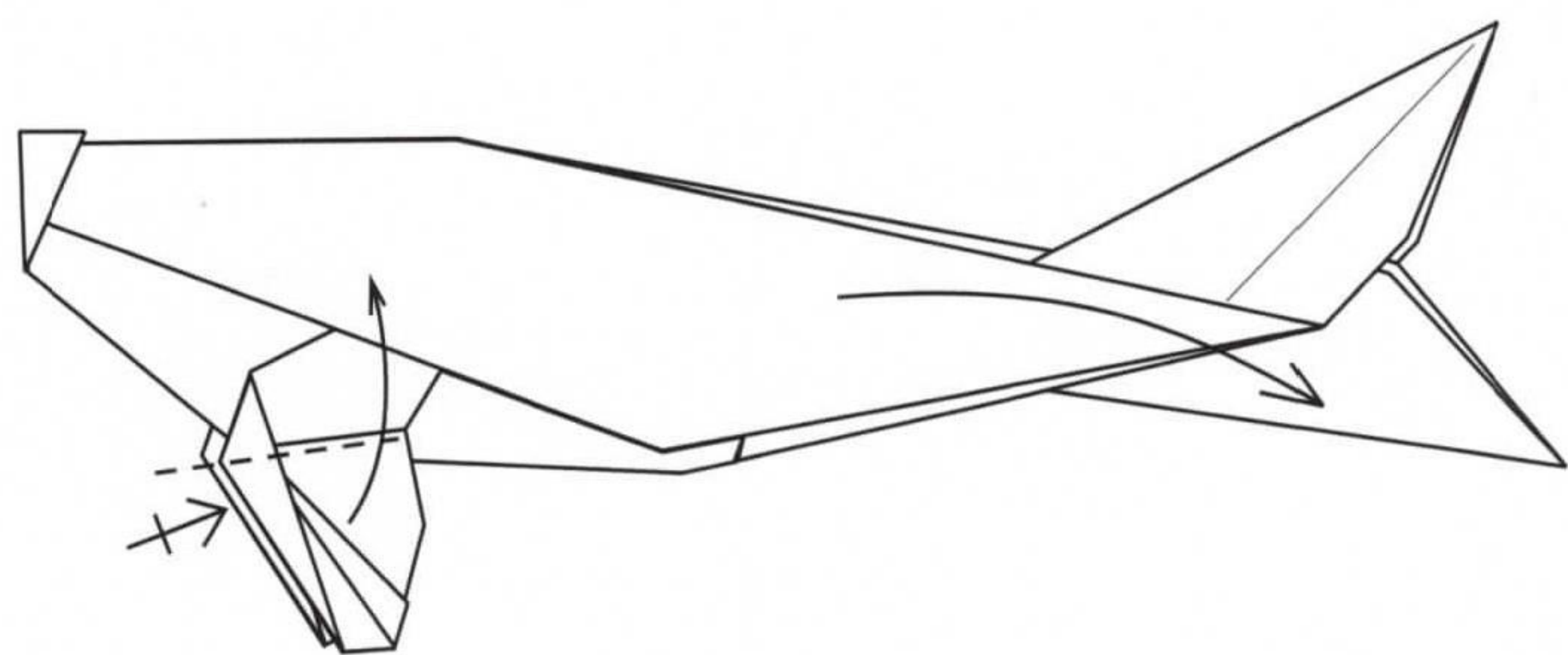
18. Inside-reverse-fold both tail layers upward. Fold the front fins down on each side.



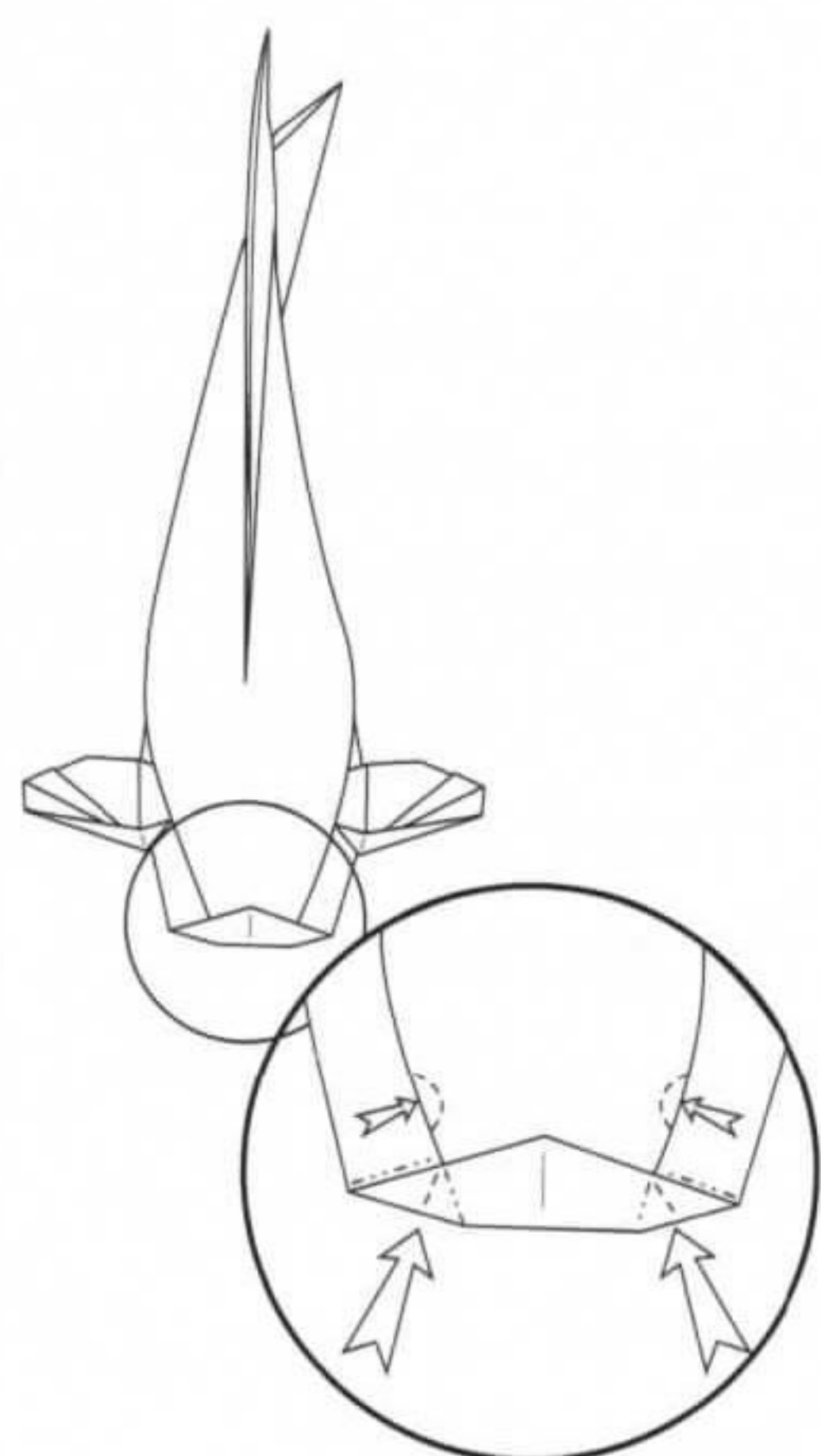
19. Separate the top and bottom tail layers and inside-reverse-fold the bottom one down. Squash-fold the leading edge of the pectoral fins, and then tuck the tips inside the base of each fin.



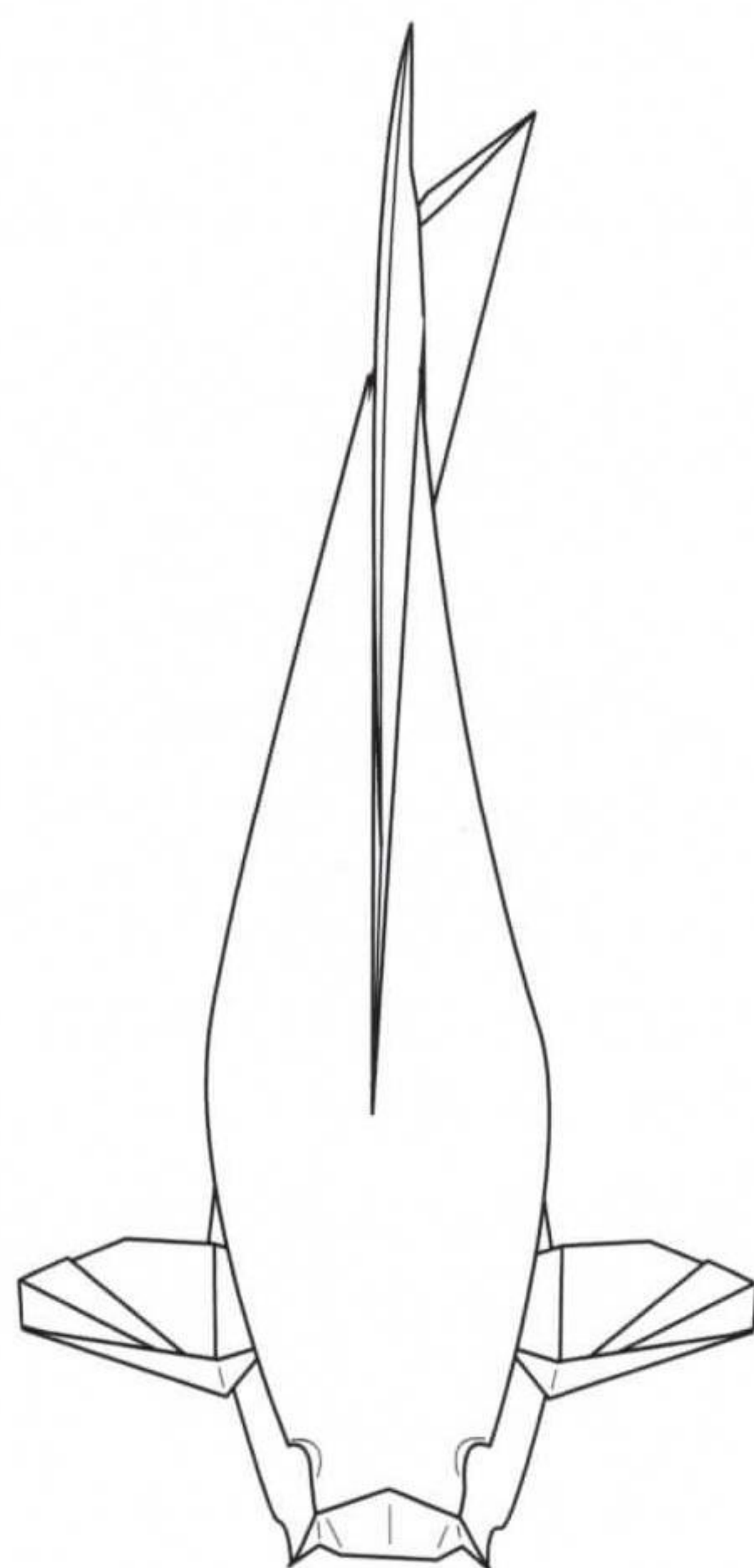
20. Crimp the lower tail near the body. Mountain-fold the back corner of the front fins.



21. Curl the rear of the fish and tail to one side or the other. Fold the front fins upward.



22. Shape the mouth by mountain-folding the edges of the upper sides of the lip. These will be the barbels or whiskers. Use your thumb and index finger to curl the lower edge while forming an outward twisted pucker at the upper side of each lip, near the cheeks. Make eyelids by forming curved creases in the folded edges on top of the head.



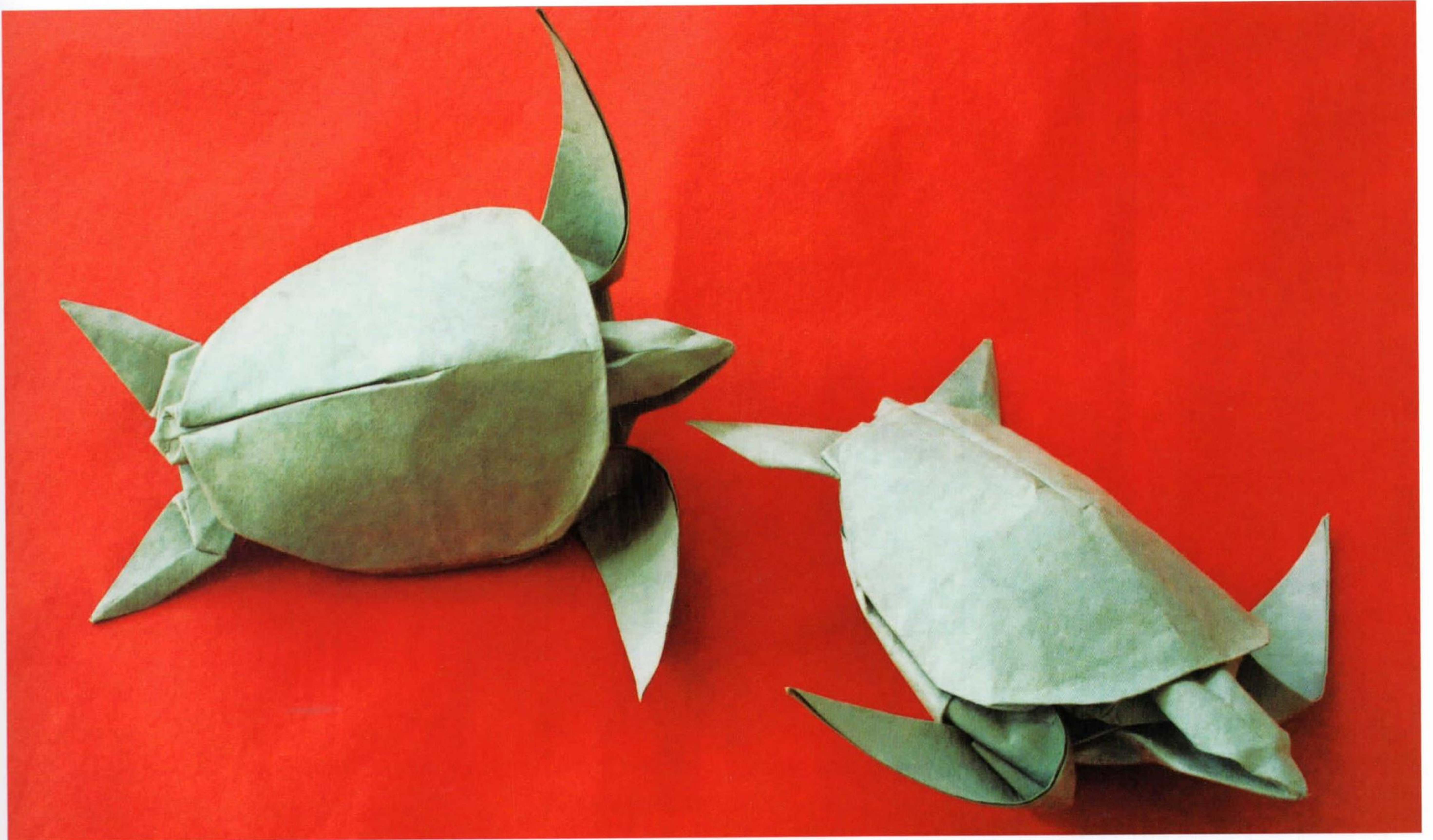
23. The finished Koi. Add color patterns with torn paper shapes of red and black.

ADDITIONAL HINTS FOR ADDED DETAIL

- ✿ Inside-reverse-fold the edge of paper from the barbel to the fin. Form a mountain fold to intersect the corner of the paper. Lock the layers by turning the edges of the corners underneath. Repeat on other side.
- ✿ Narrow and round out the belly by folding the free edges inside the model, all along the model, and up into the tail area. Repeat on the other side.
- ✿ Heavy paper will require more effort. Push the corner near the tail flat to form a mountain and a valley fold to lock a more slender shape. The mountain fold is toward the head, the valley fold toward the tail.
- ✿ Twist the paper away from the front to form the eye. Gently curve a dimple above the mountain fold at the eye to accentuate the eye, and insert another dimple behind the eye to suggest the gill area.
- ✿ To help the koi to dry in shape when wet-folding, restrain the tail area with clothes pins padded with paper napkins.

sea turtle

Designed by Michael G. LaFosse

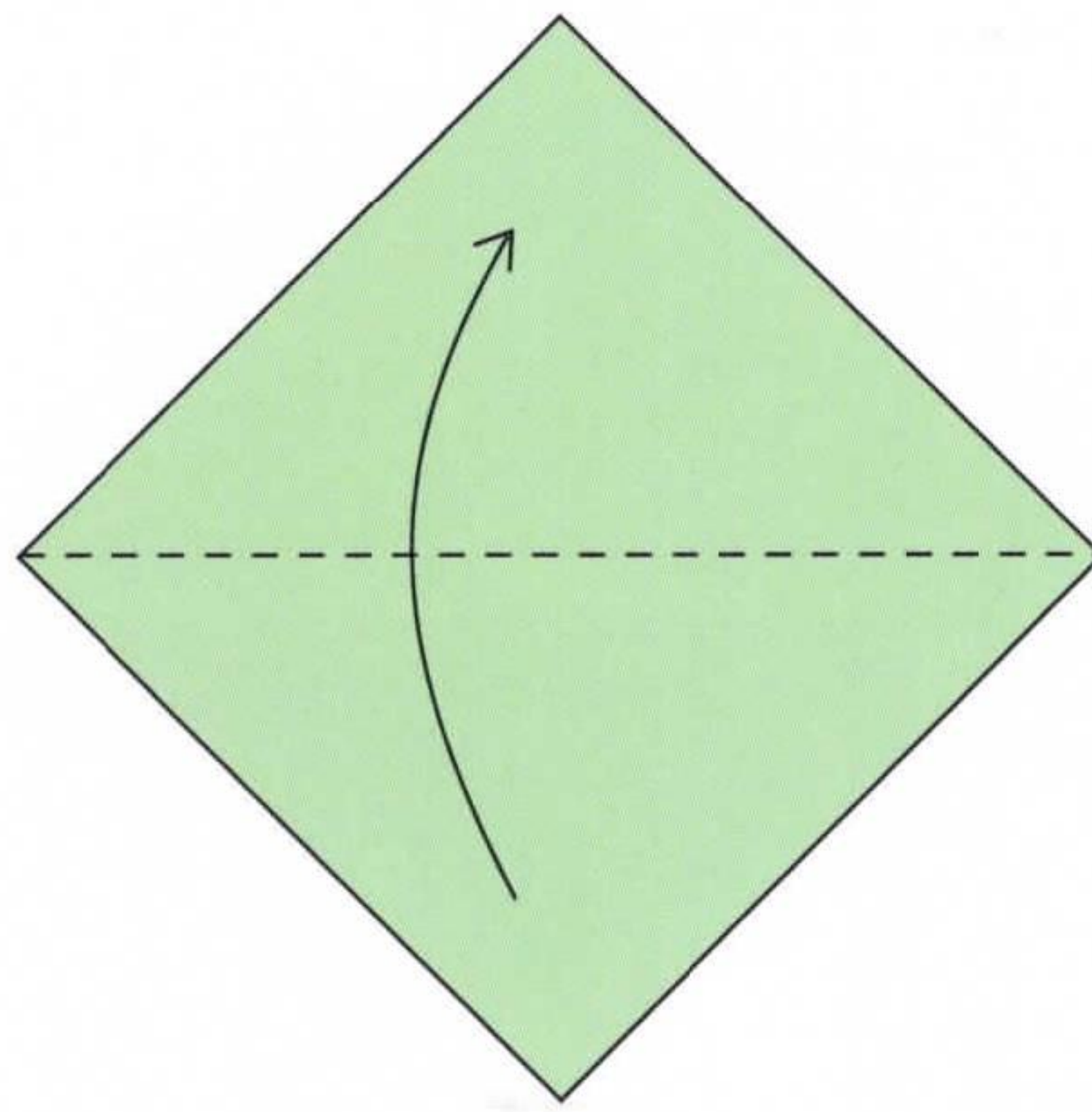


One of my favorite natural history subjects is the turtle, and the sea turtle is the most elegant of them all. Imagine this huge yet graceful creature free to roam the reefs in every sea with few predators to fear. The New England Aquarium features a large ocean tank at its heart filled with hundreds of fish, yet visitors seem to enjoy watching the sea turtles more than any of the other creatures. I had the opportunity to dive in the great tank many years ago, and I will never forget these creatures' smooth surfaces and flowing lines, which enable them to glide through the water. Their immense forms dominated everything else around, making it impossible to focus on detail—just shape and form. Since I had seen the sea turtles under a depth of water where colors are filtered out, I usually fold them from blue-green paper.

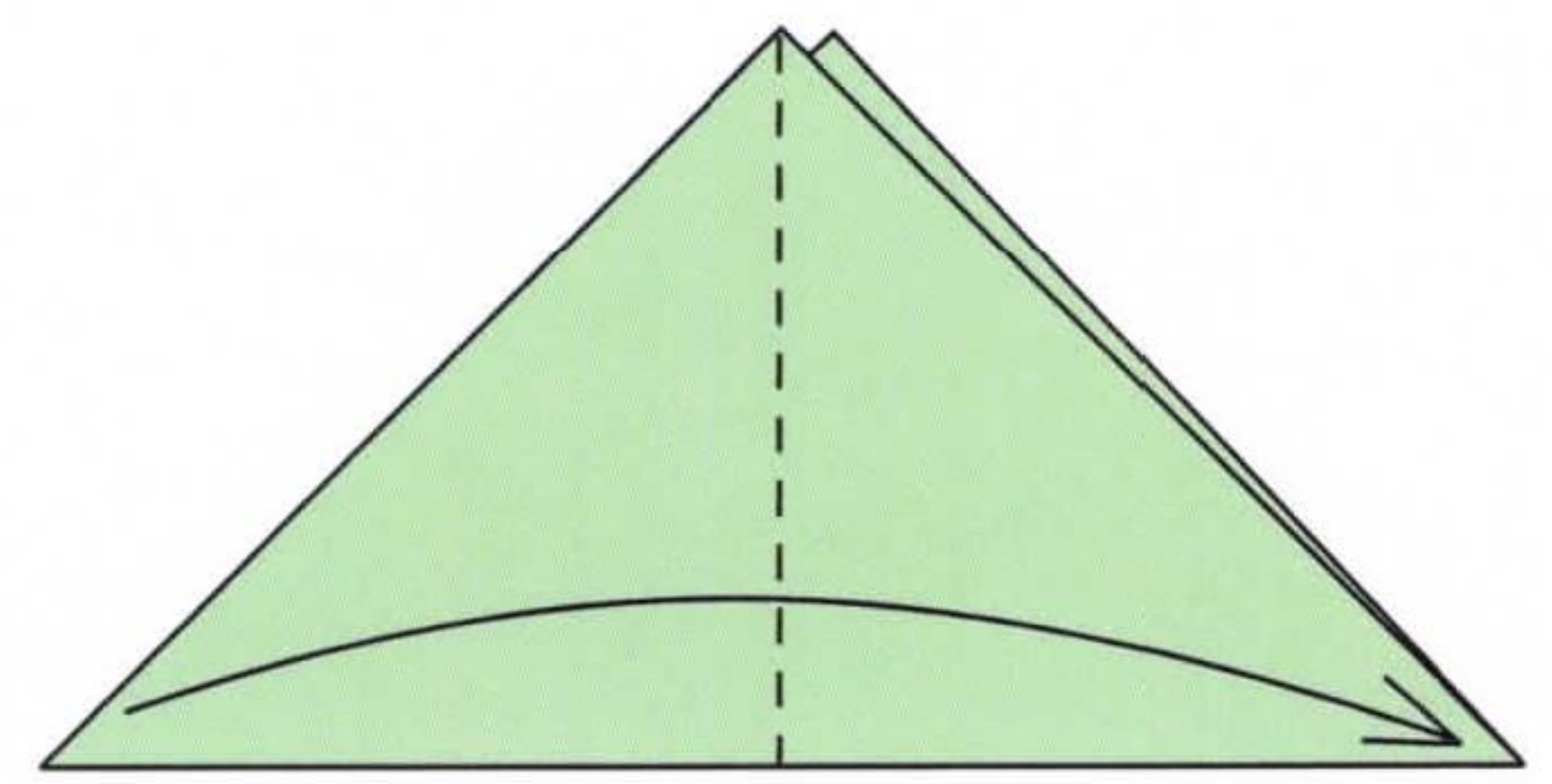
Origami sea turtles were usually designed with only the top shell in mind, but I wanted to design one with a plastron, or belly plate. The simpler the shape, the more skill required to animate the character of the model. The subtle grace you add to the curves will make the model speak to the viewer. This model was developed after I had created the Koi base, so my Sea Turtle and Humpback Whale are both derived from that base. Perhaps this versatile base will inspire you to create other sea creatures.

PAPER SUGGESTIONS

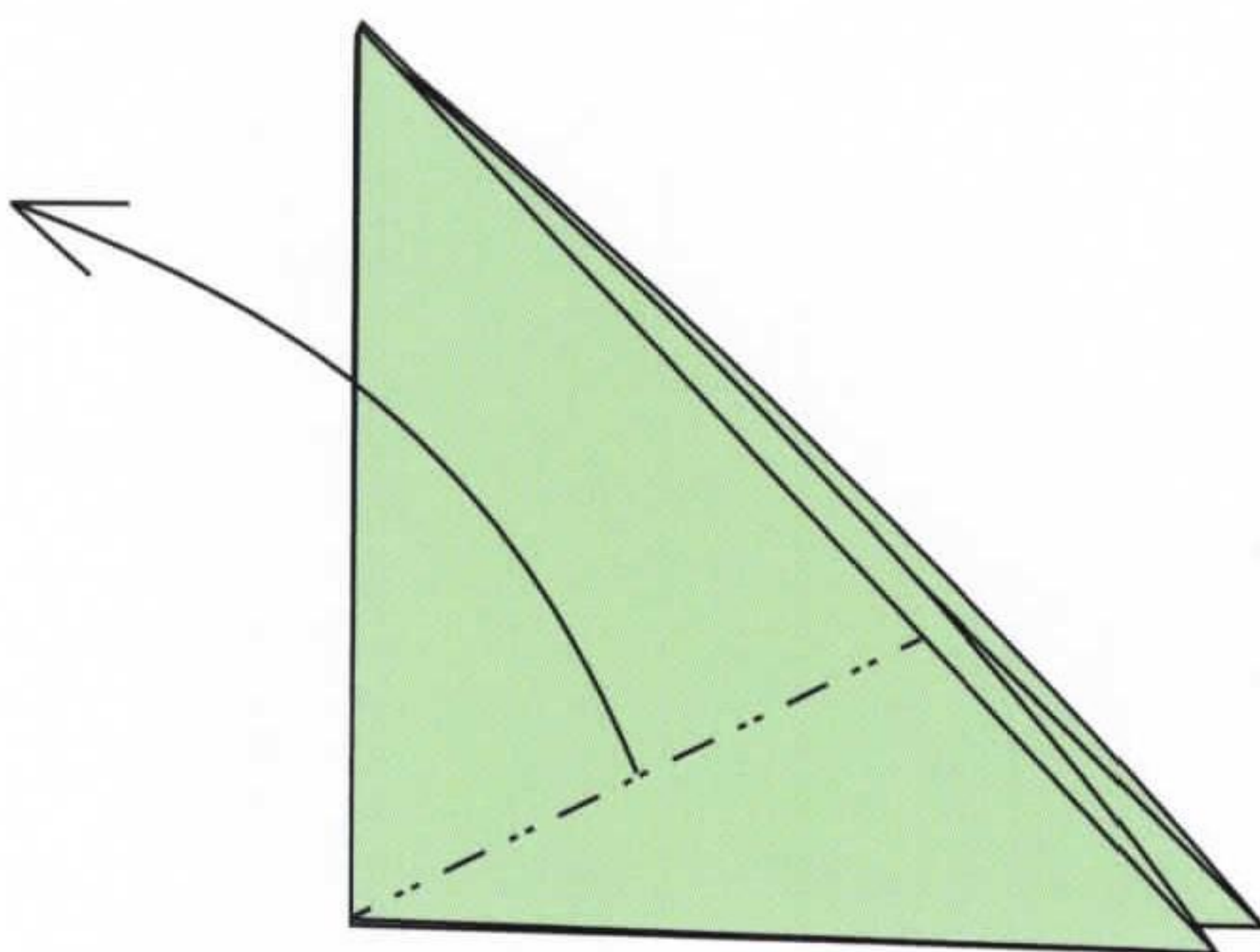
Paper choice, once again, is critical. Find paper that is stiff with sizing, pliable when moistened, yet able to hold a crease. Your sea turtle will be about half the length of the initial square. I suggest using 75 lb, 19-inch (48-cm) square cotton paper. You may practice dry-folding in tissue foil.



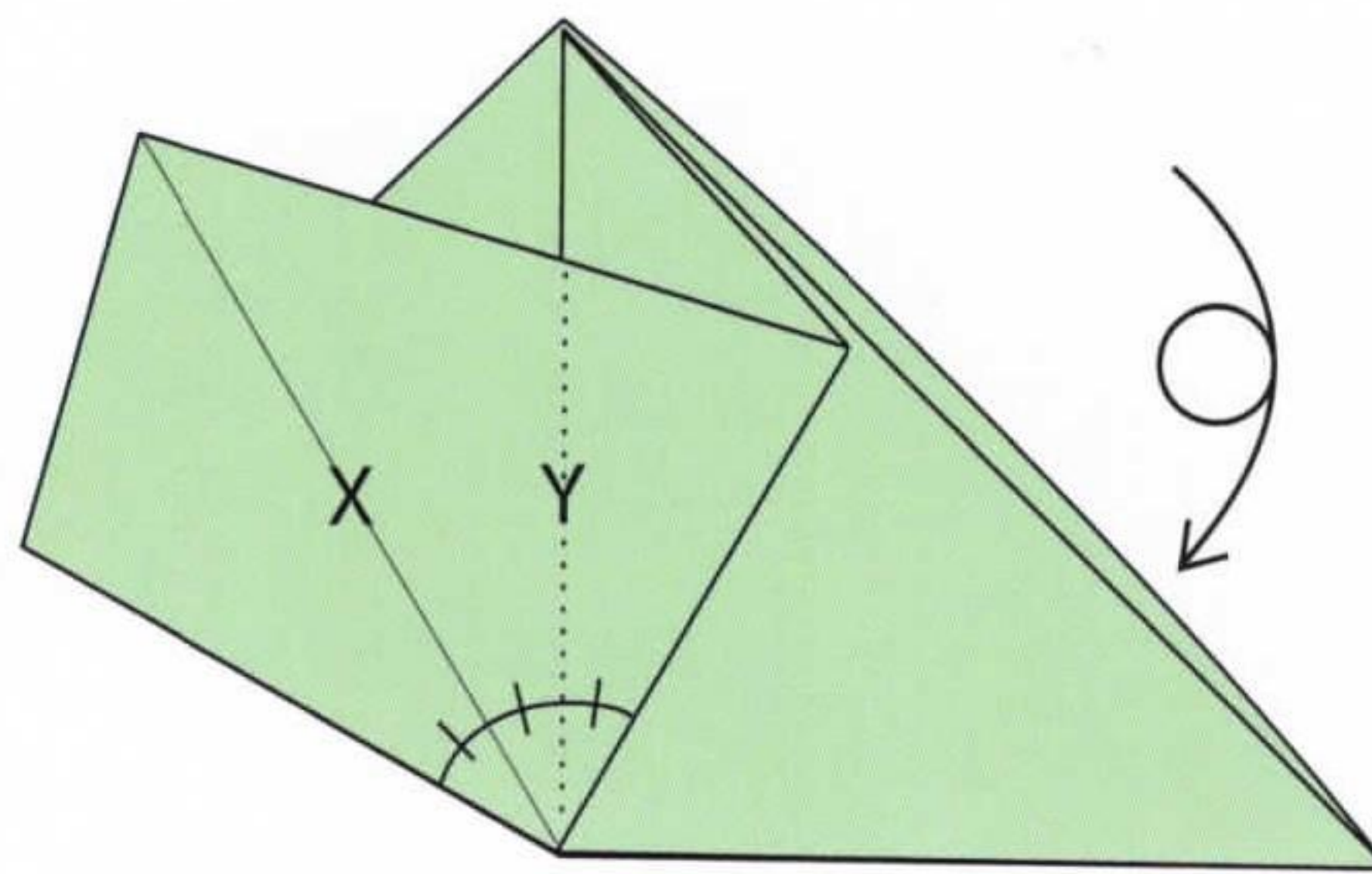
1. Fold in half, corner to corner.



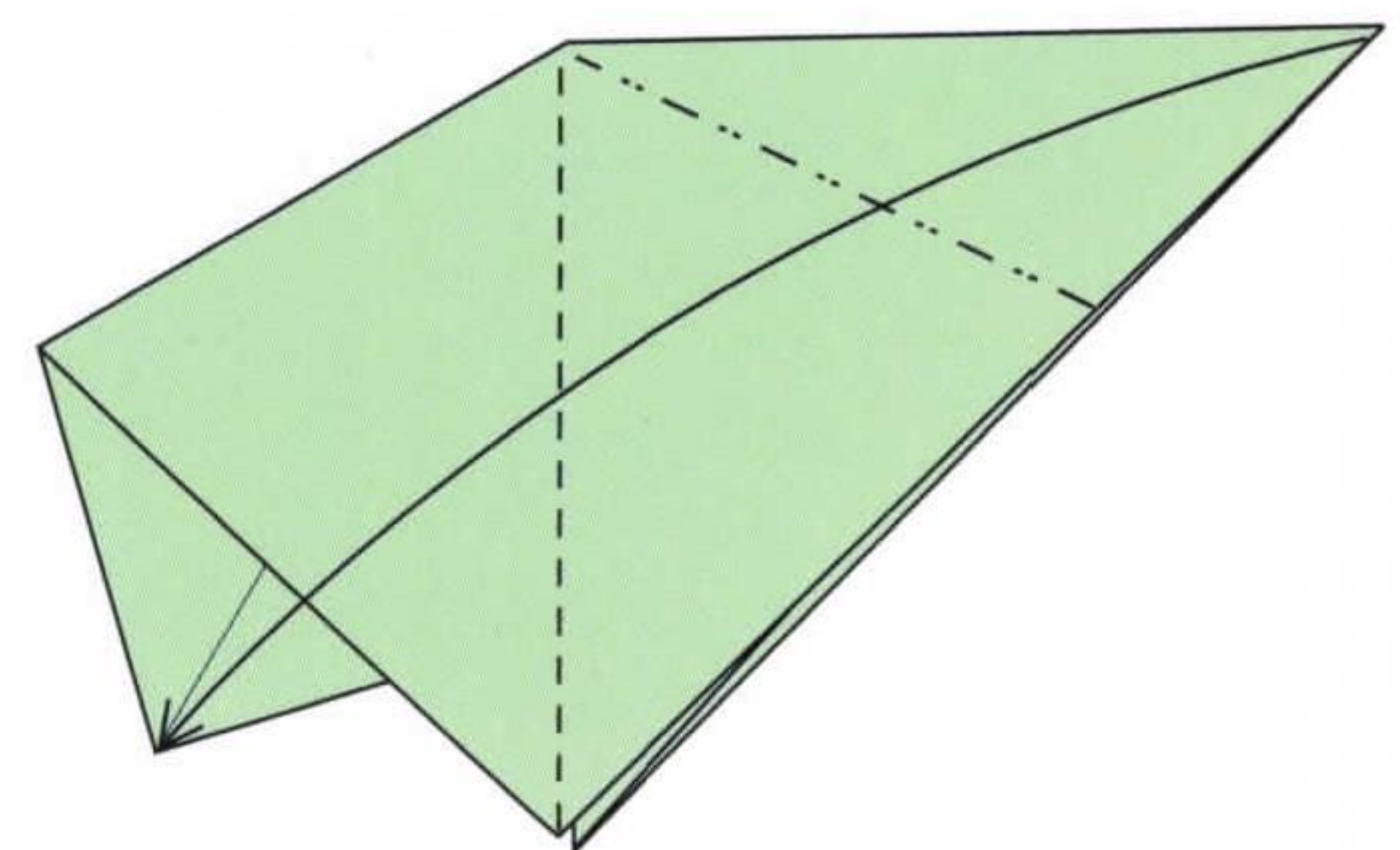
2. Fold the triangle in half, corner to corner.



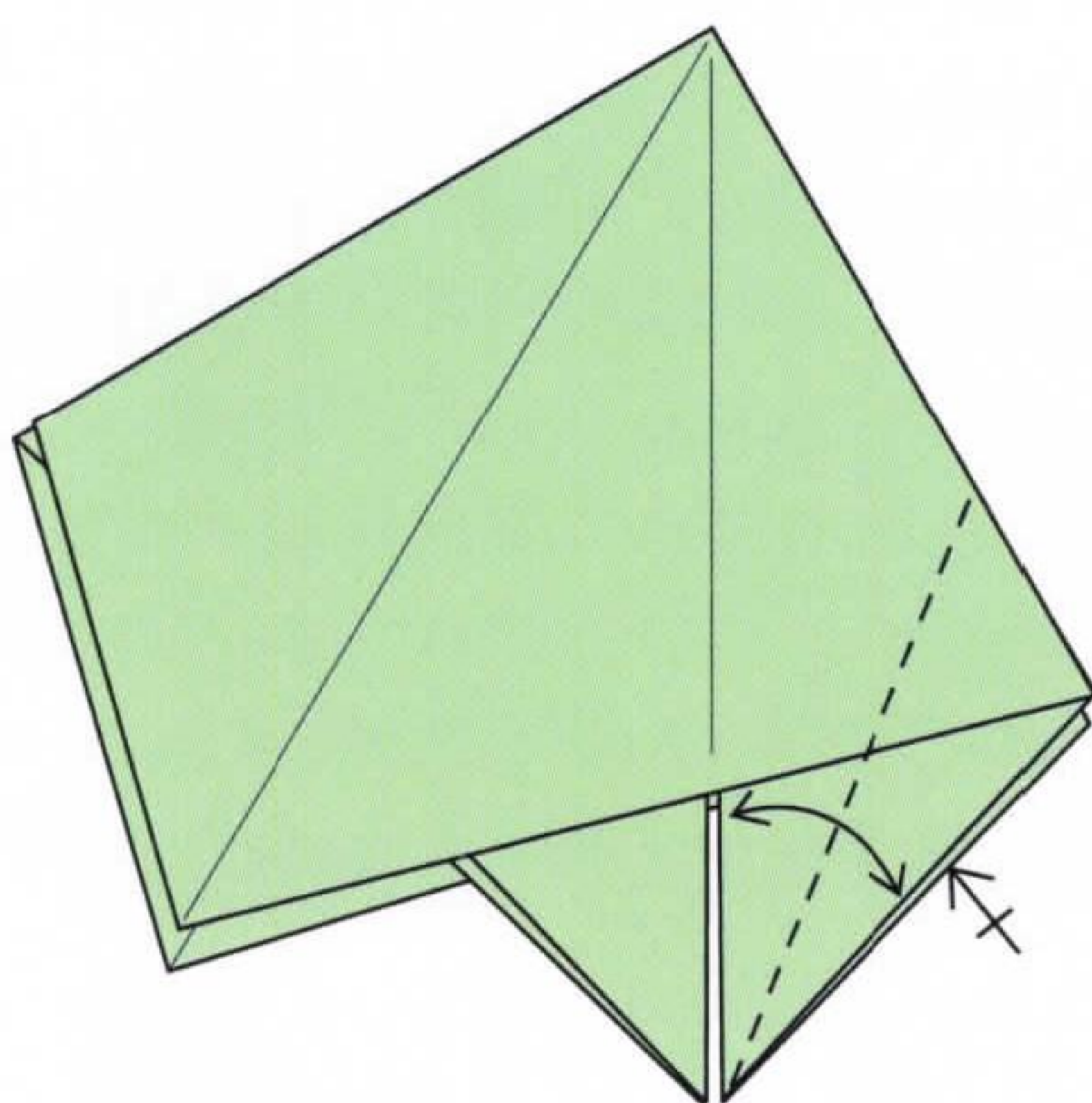
3. Swivel and squash to form a flap with three equal segments. The layer beneath will help you adjust the thirds.



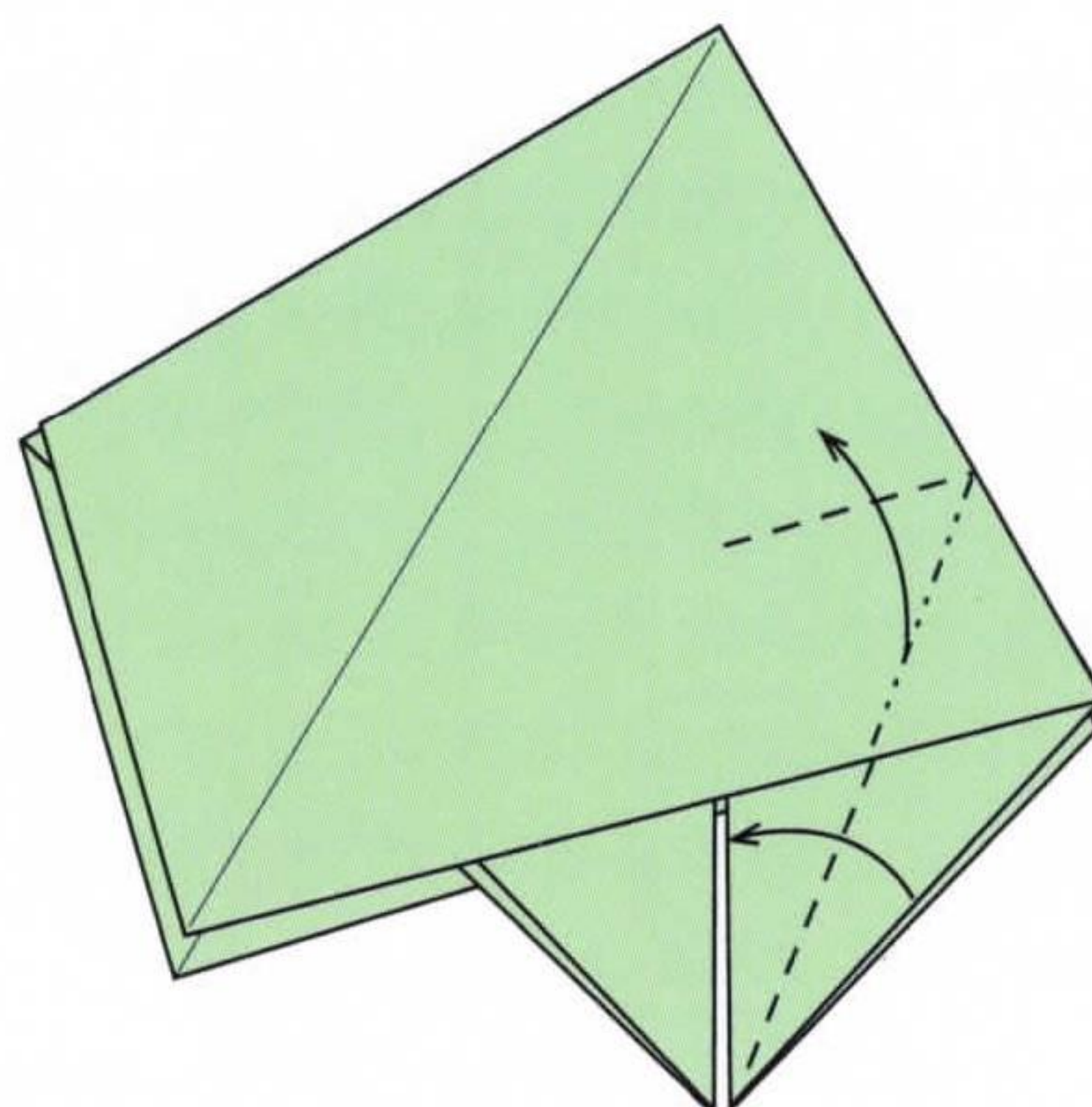
4. Check by folding at "X," which should bring the right edge over the hidden line "Y." Adjust if necessary. Turn the paper over, top to bottom.



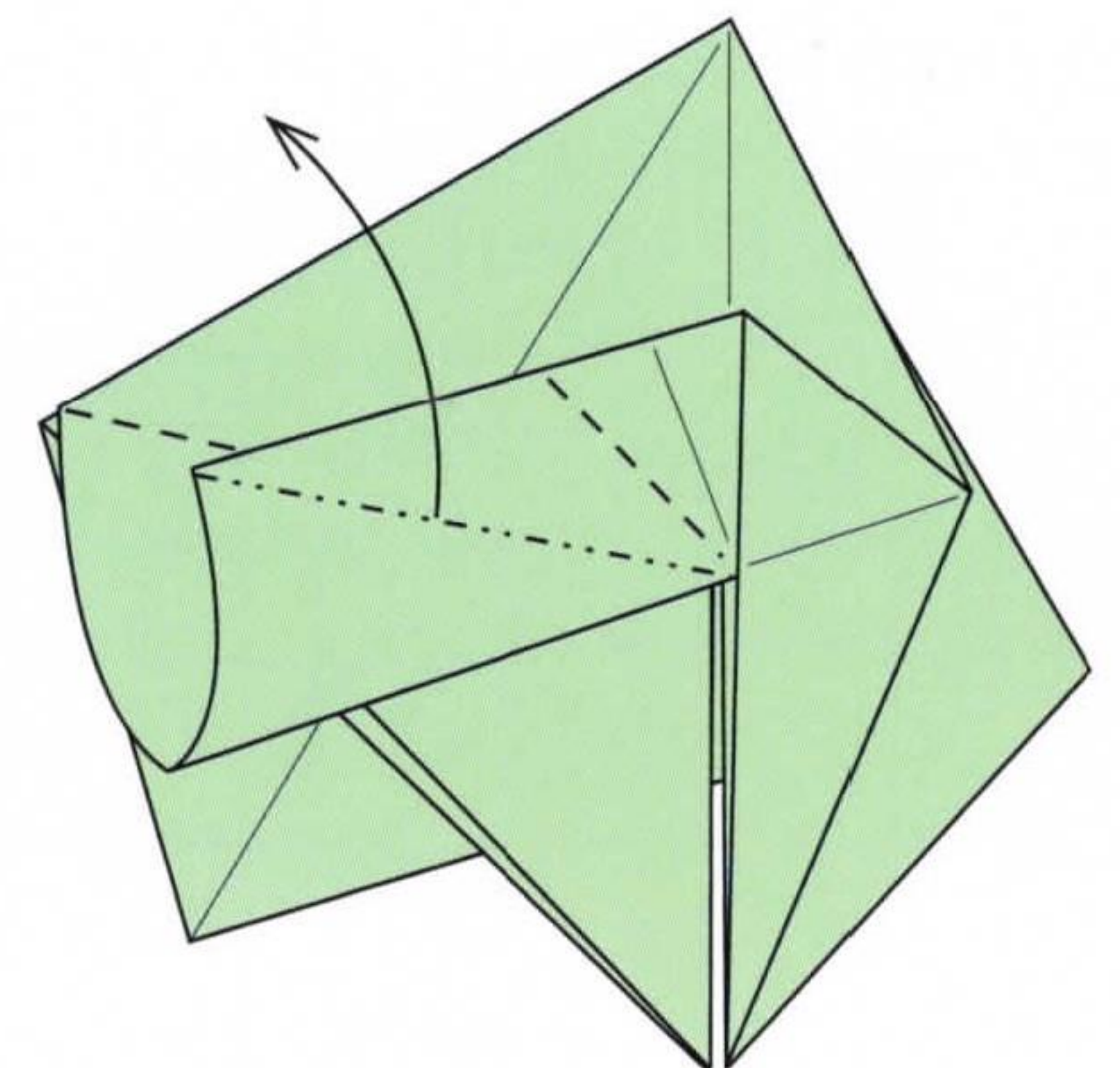
5. Repeat the same folding process on the other side. (If you are wet-folding, don't expect the paper's points to match.)



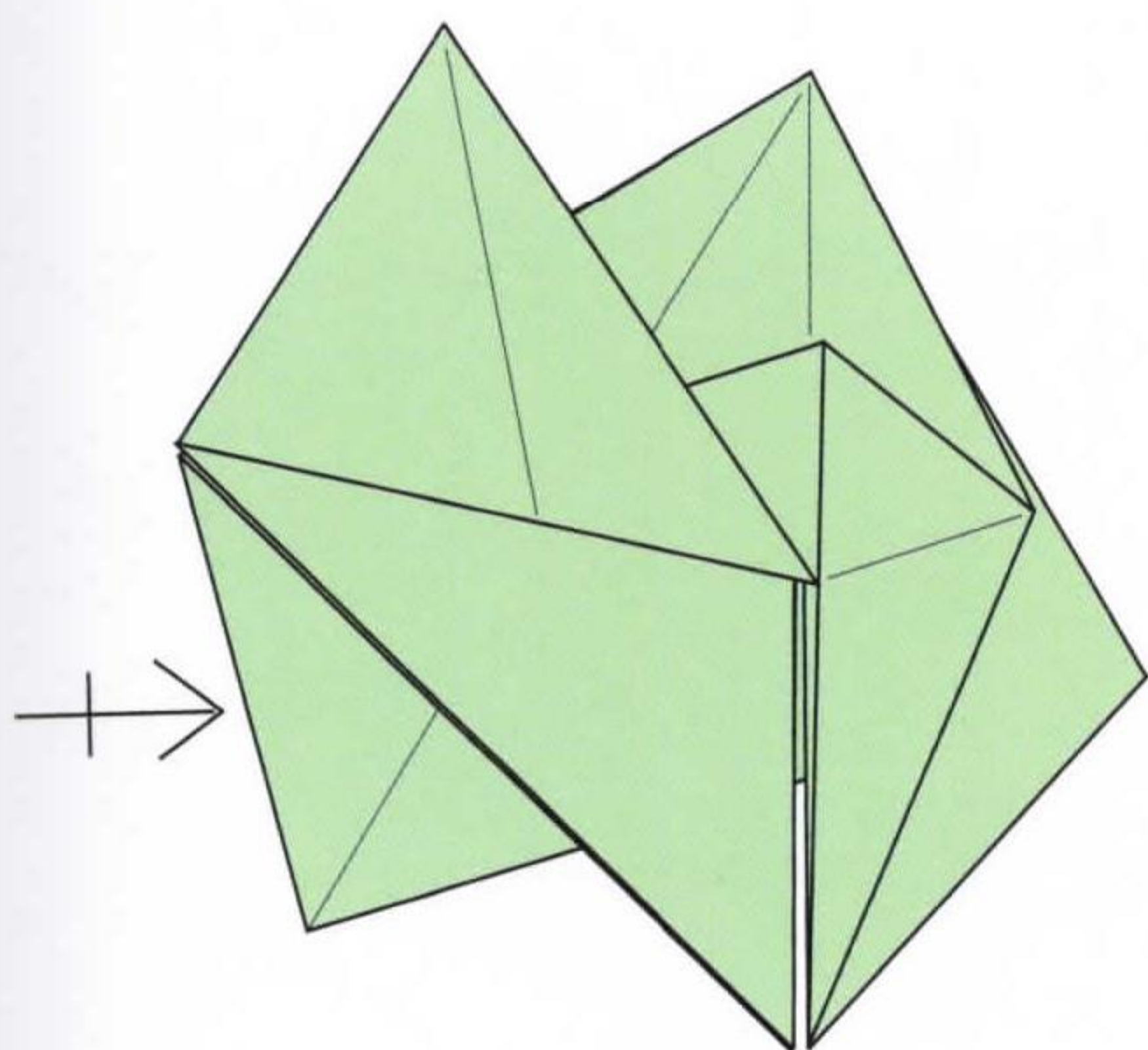
6. Fold and unfold, edge to center. Repeat on the back.



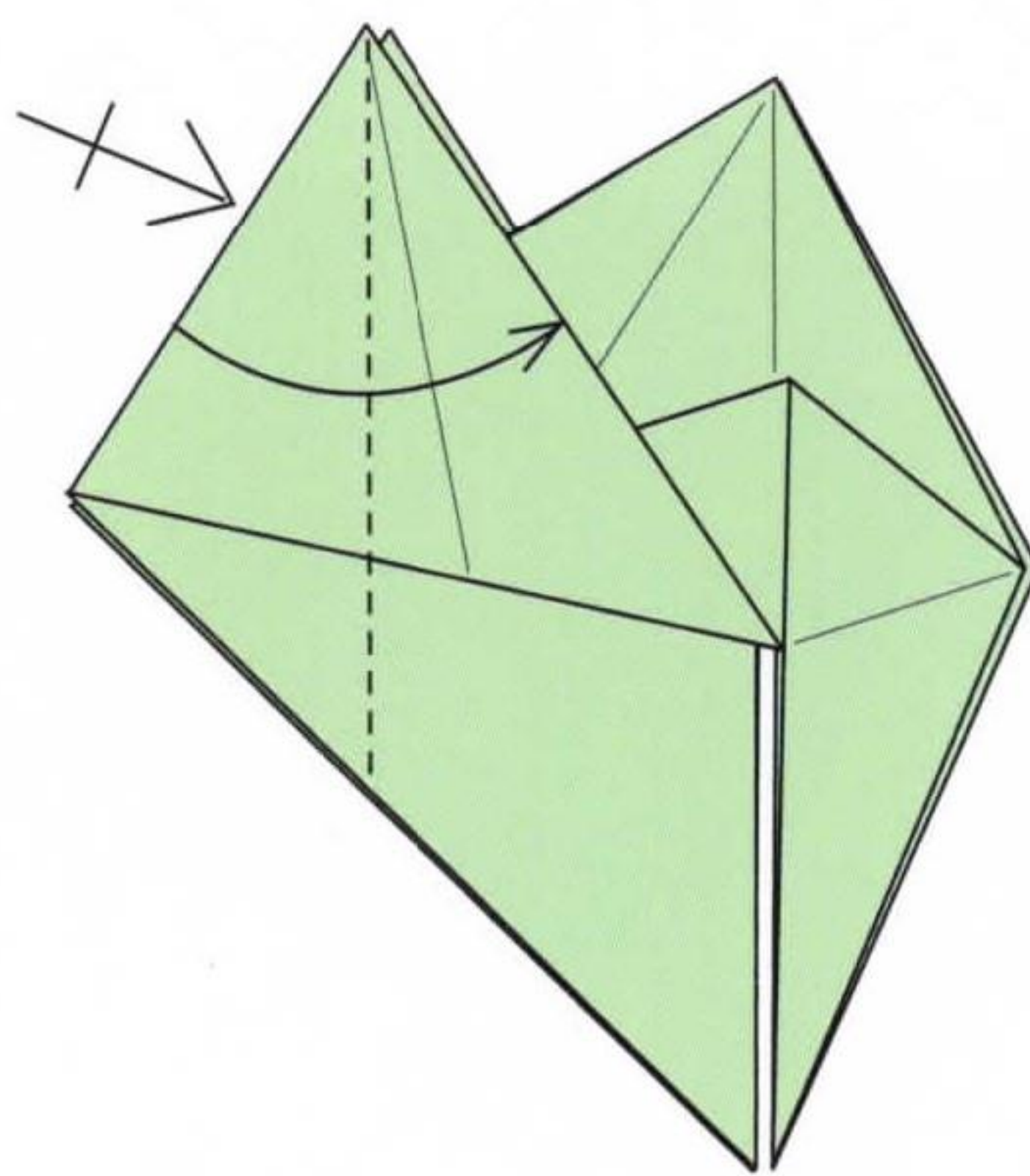
7. Move the right side of the top layer up while bringing the bottom right edge of the second layer to the vertical folded edge. Flatten the top layer only to the right of the centerline.



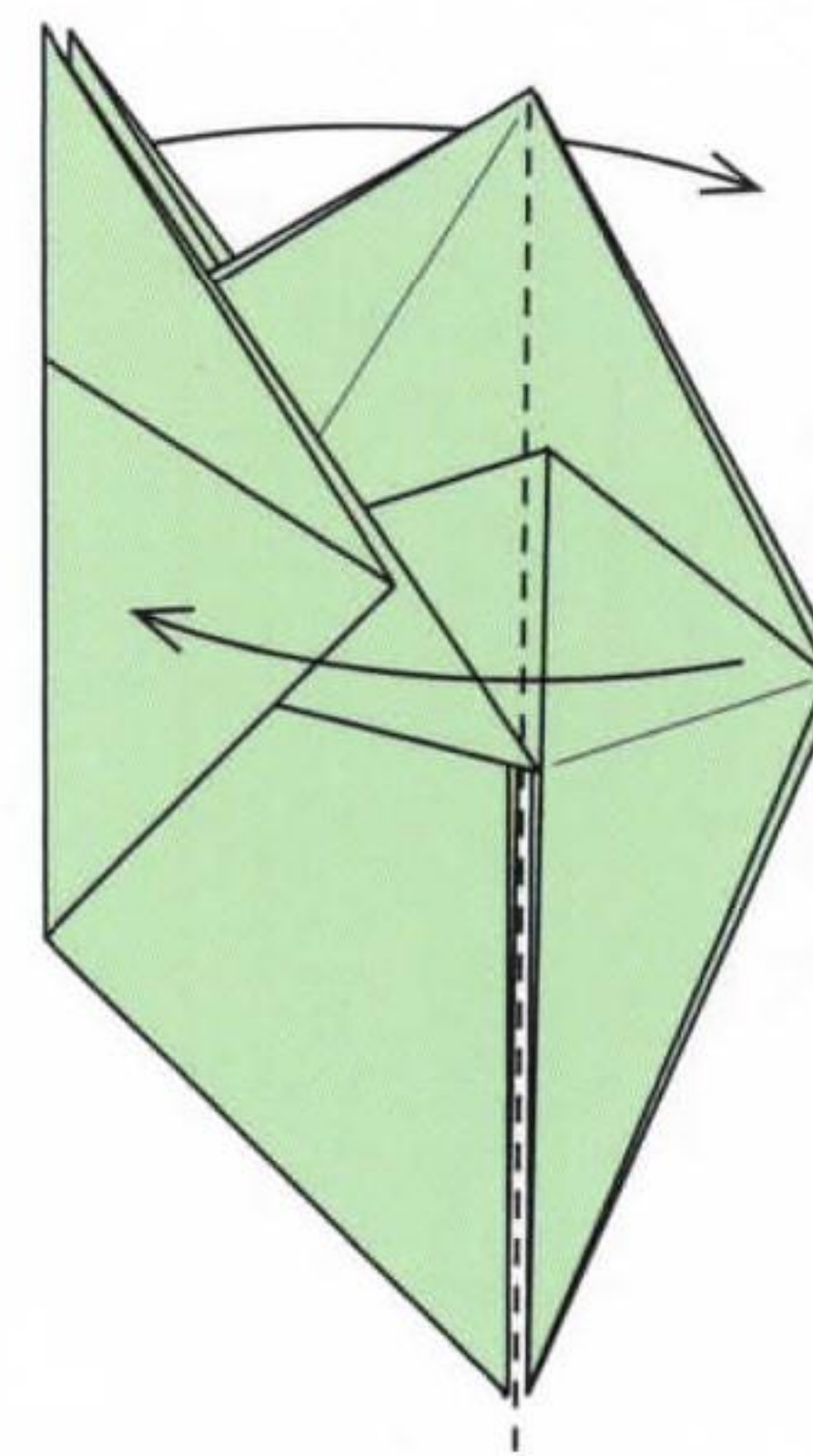
8. Form a mountain crease from the corner of the top left flap to the center of the paper. Swivel the flap up and flatten.



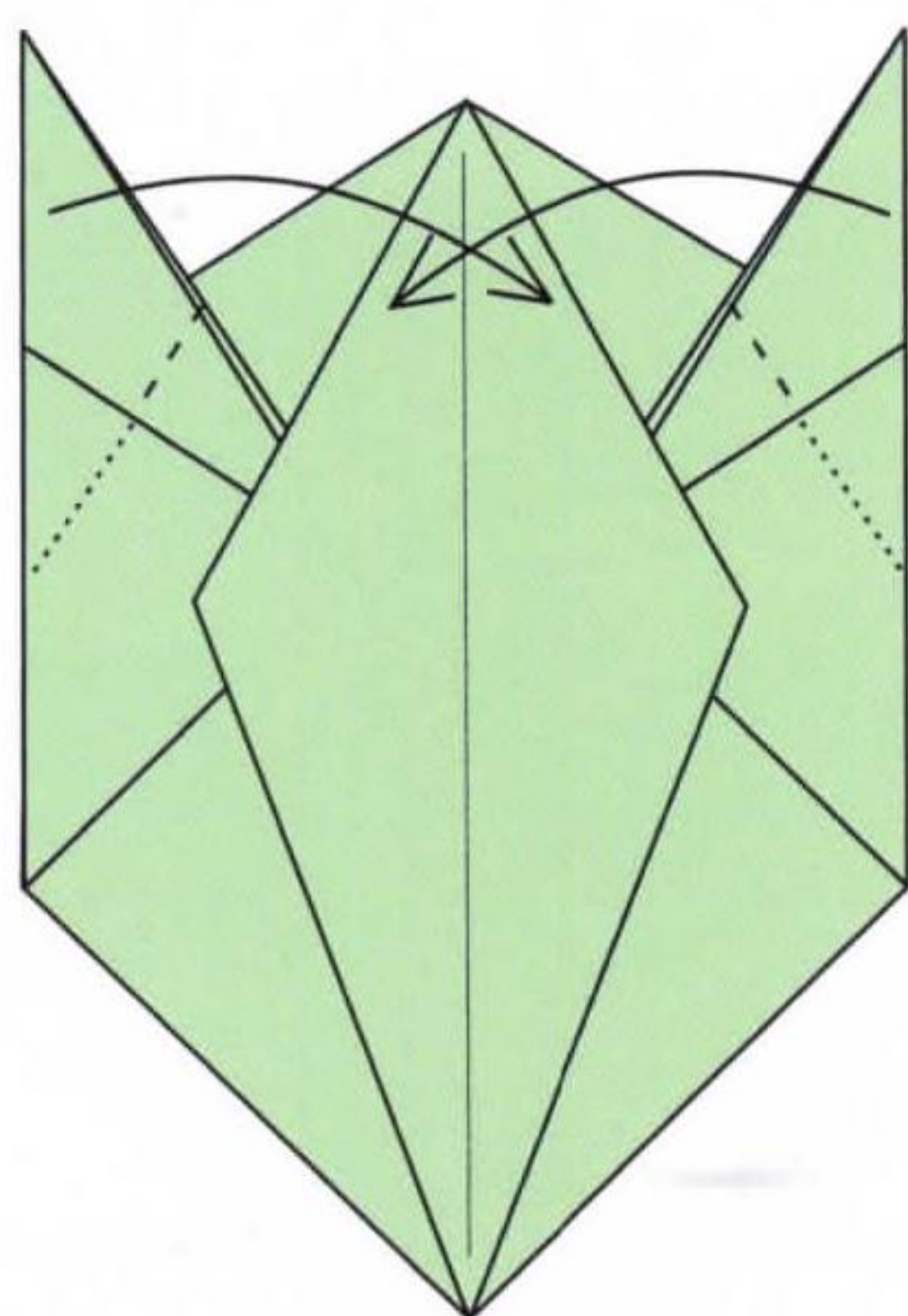
9. Repeat on the back.



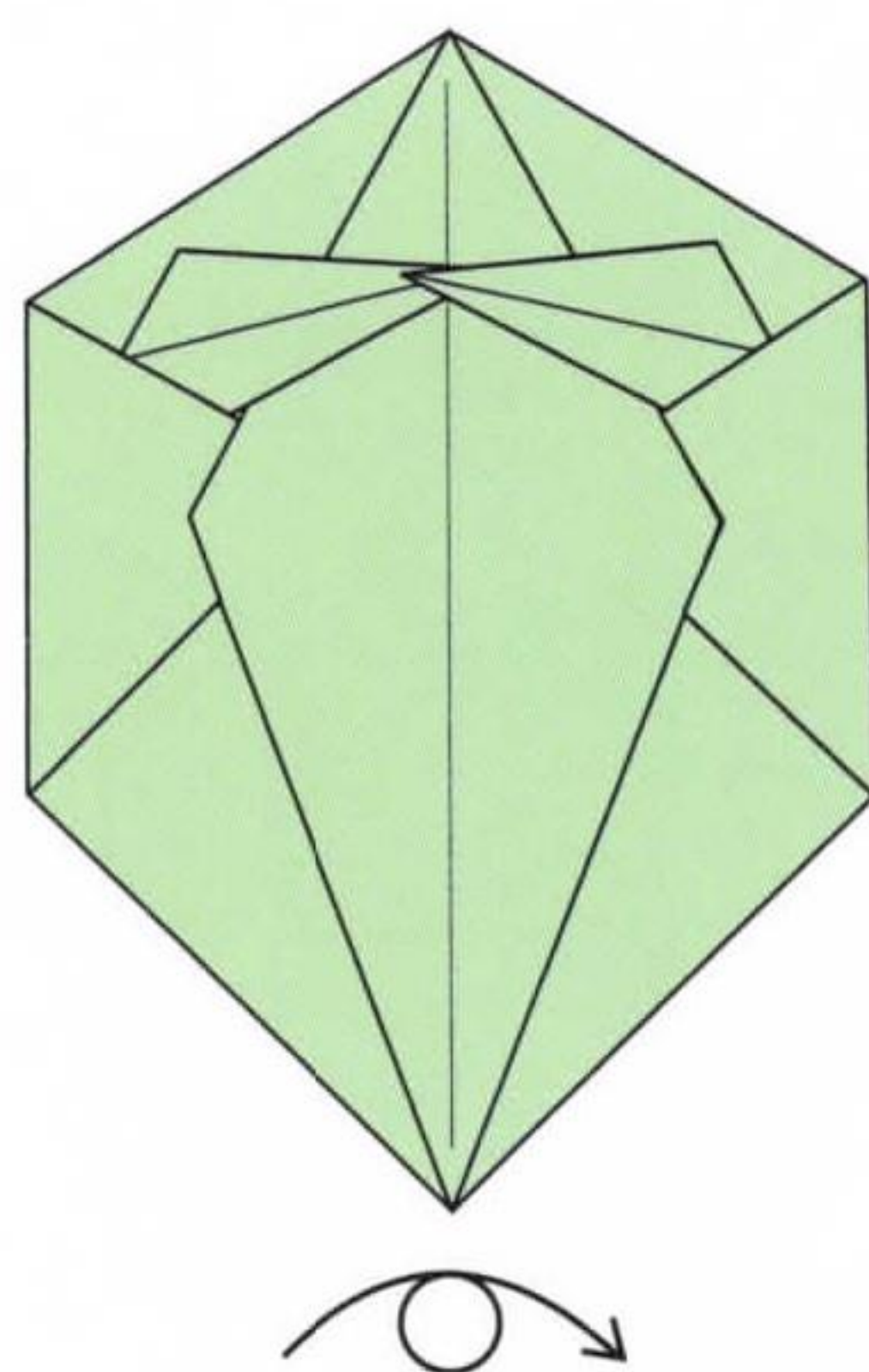
10. Valley-fold the left edge. Repeat on the back.



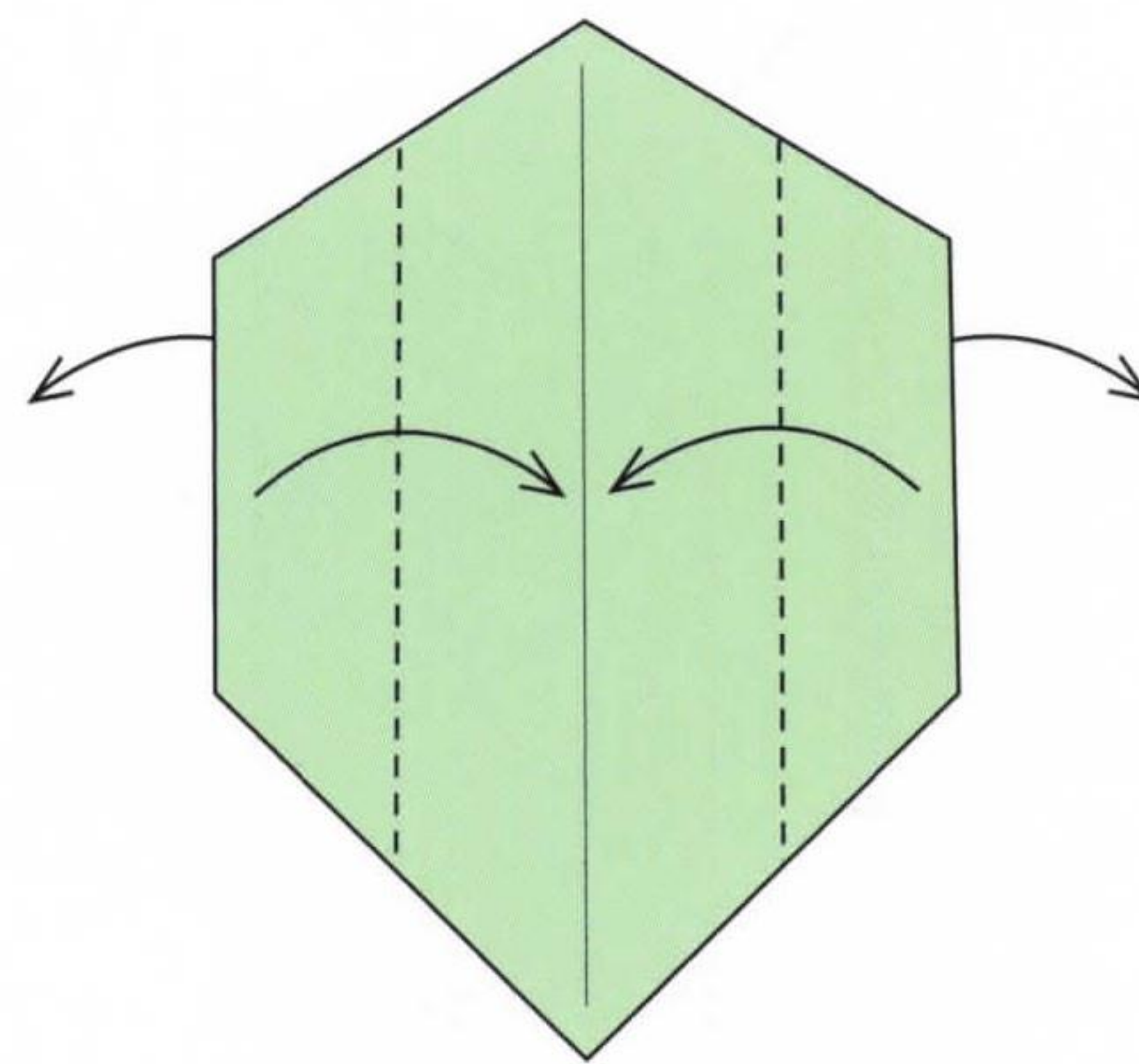
11. Rearrange the layers: top right to the left and back left to the right.



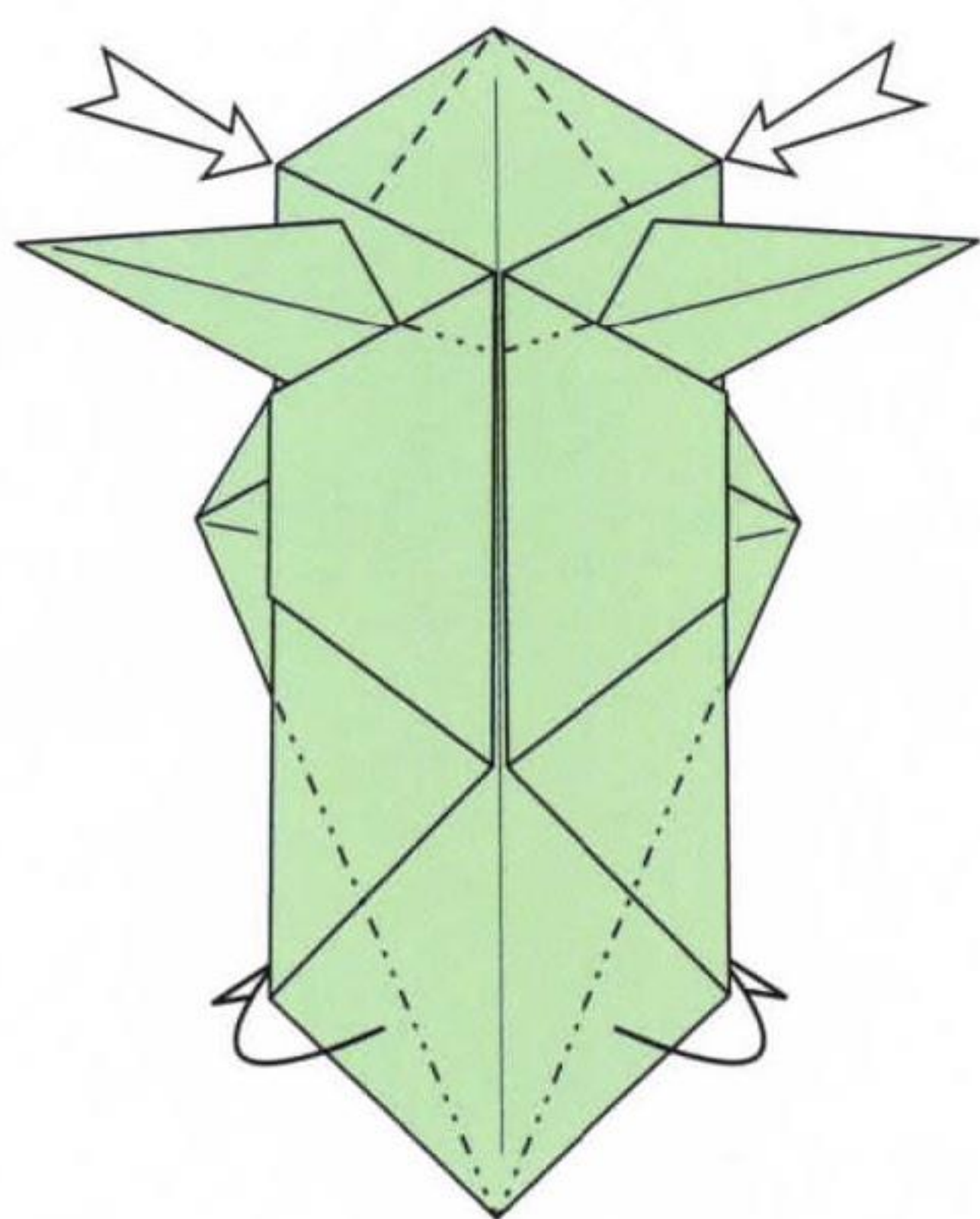
12. Your paper should look like this. Fold the top corners over so that they cross. Notice that the fold continues under the covering layer at the base of each point.



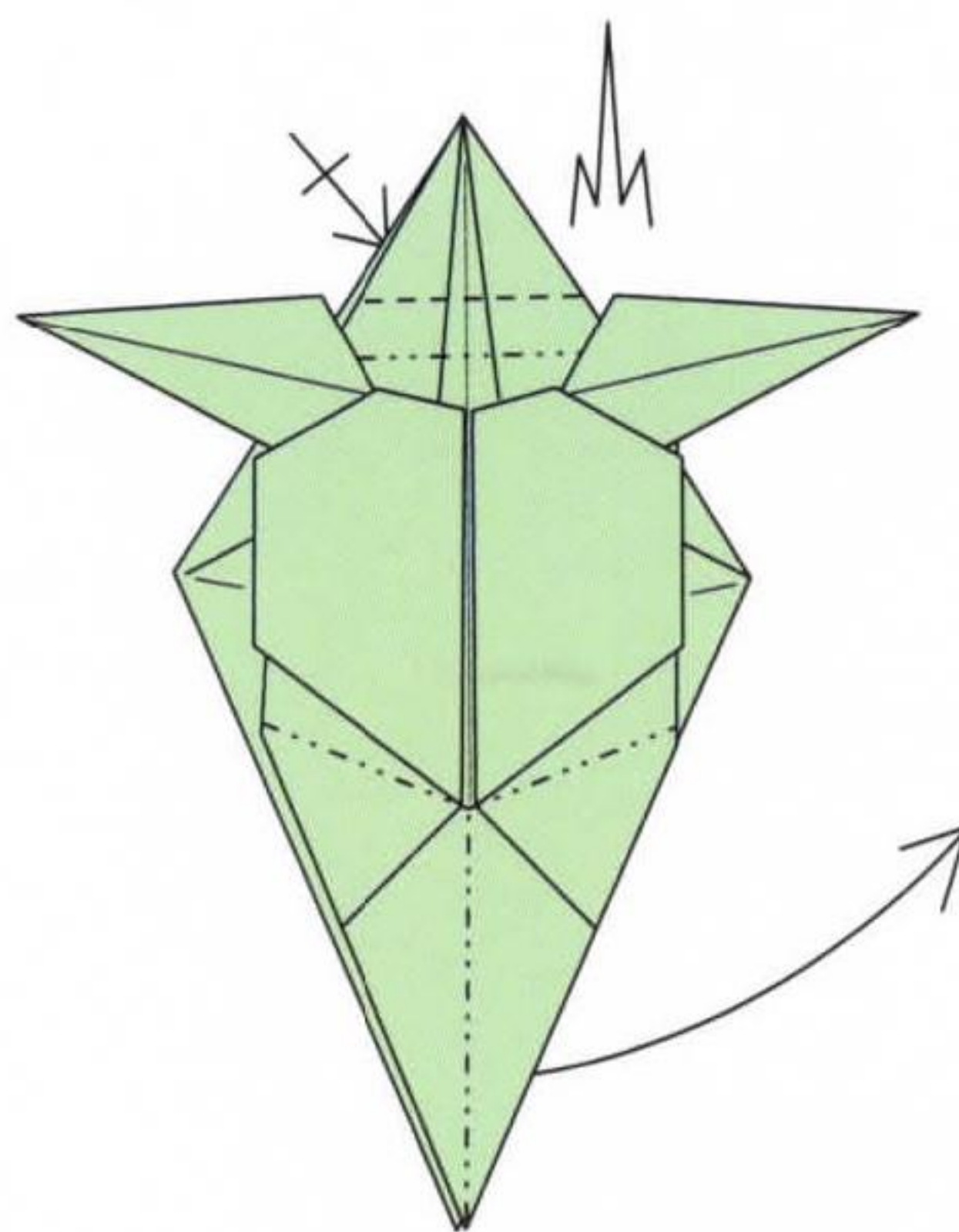
13. Turn the model over, left to right.



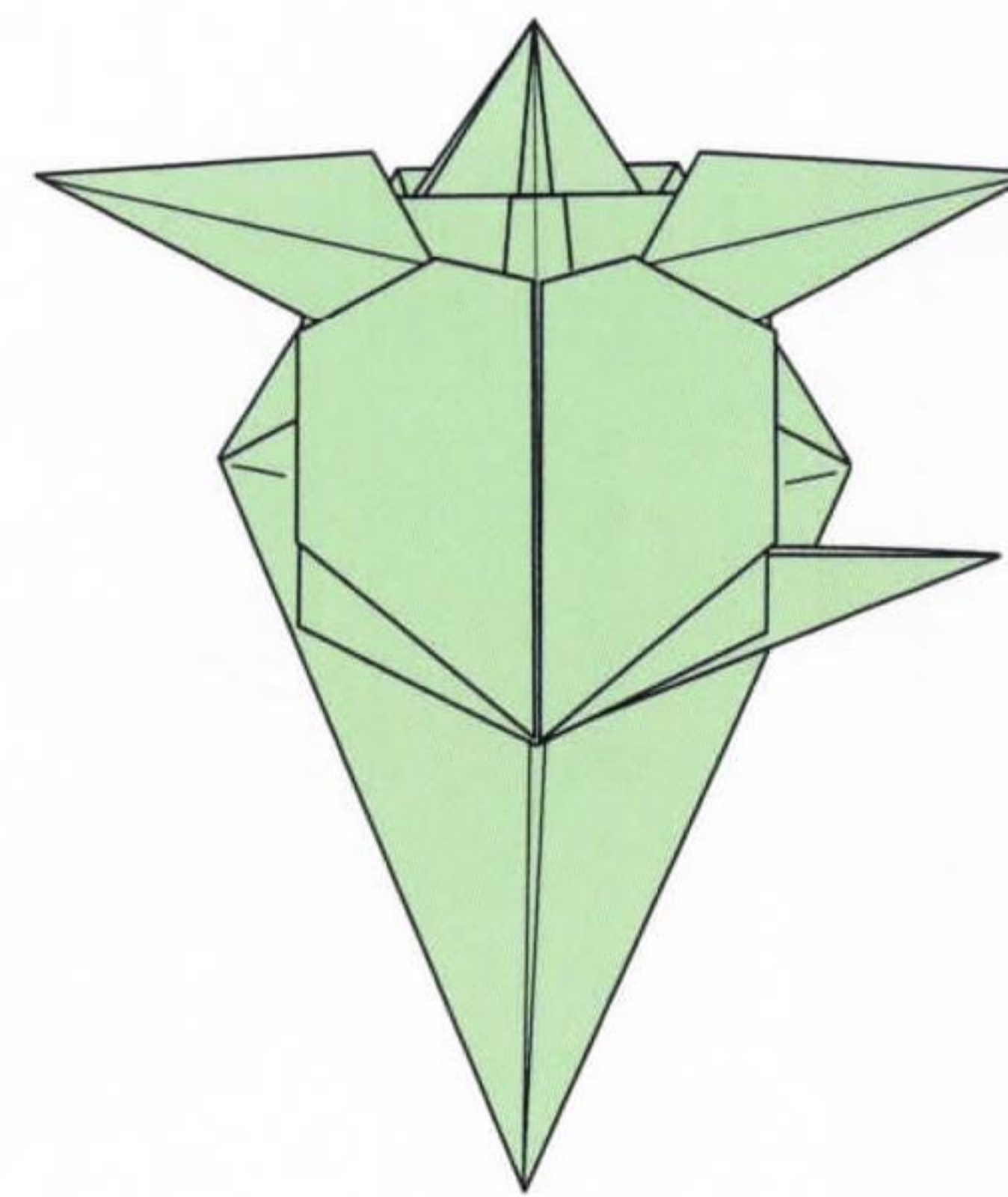
14. Bring each side to the centerline, allowing flaps to emerge from beneath each side.



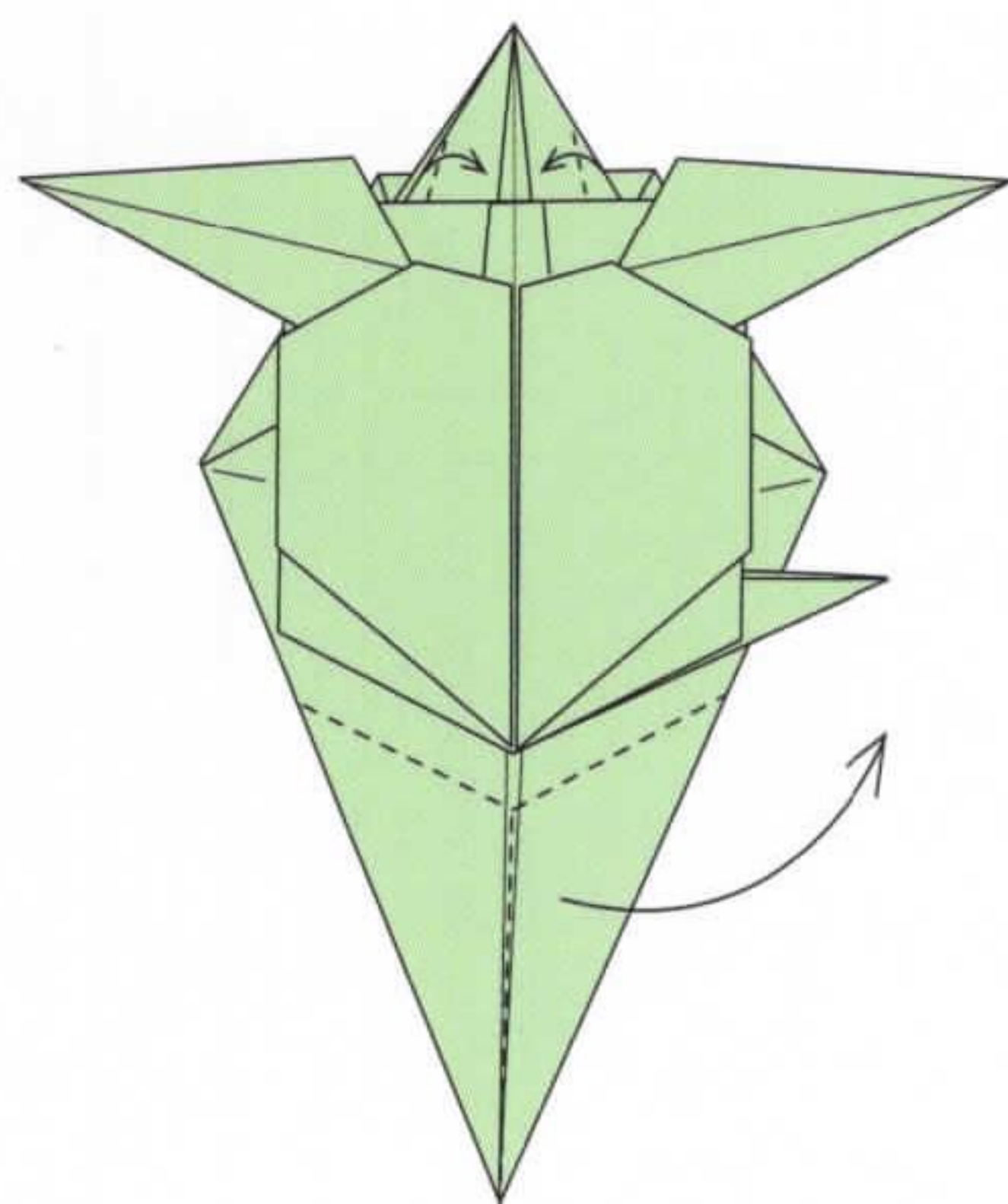
15. Mountain-fold the bottom edges of the bottom corners to narrow the point. Inside-reverse-fold the left and right side of the top corners.



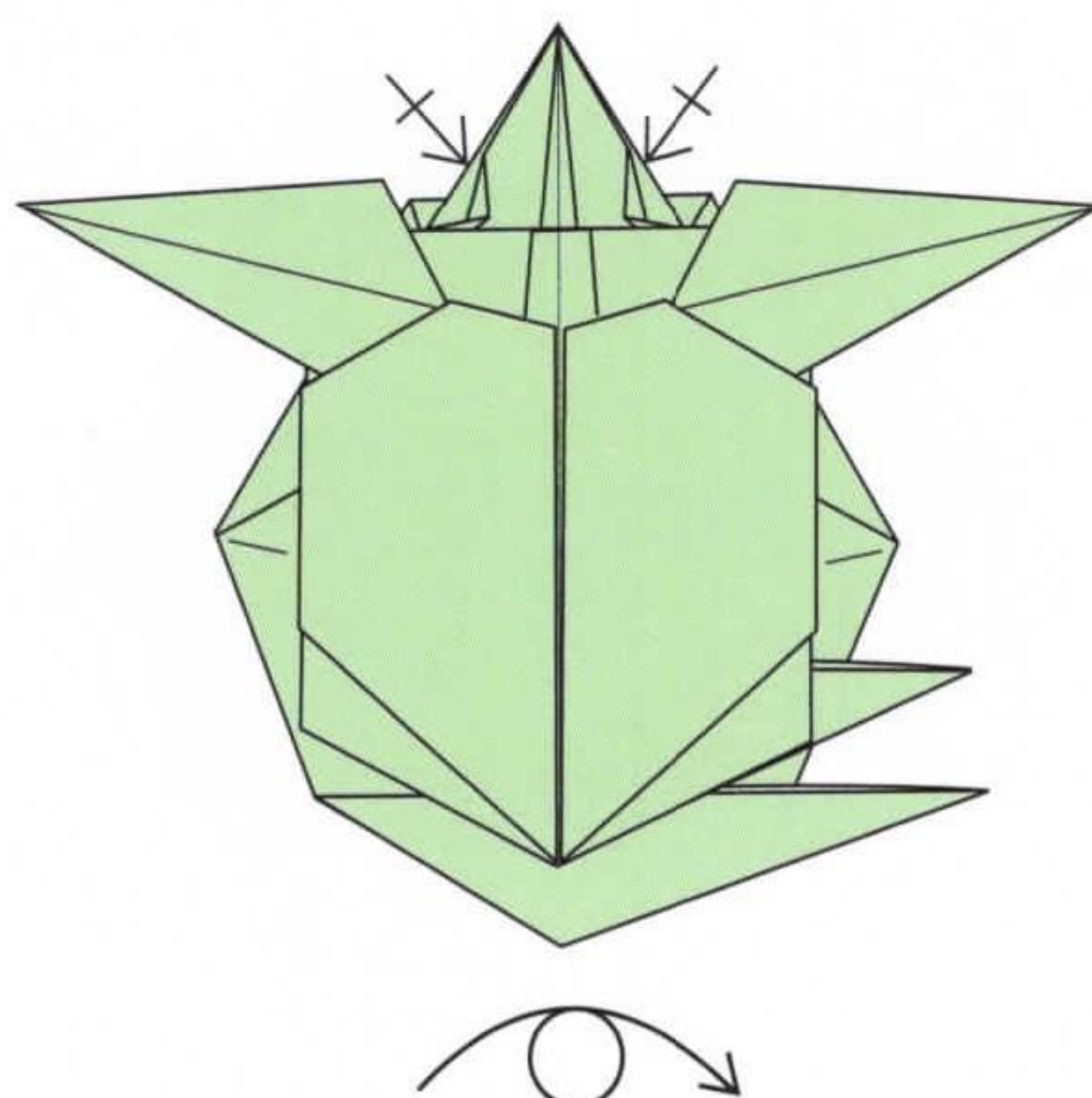
16. Crimp and sink the top point for the head. Mountain-fold the bottom point in half and flatten to the right for a rear flipper.



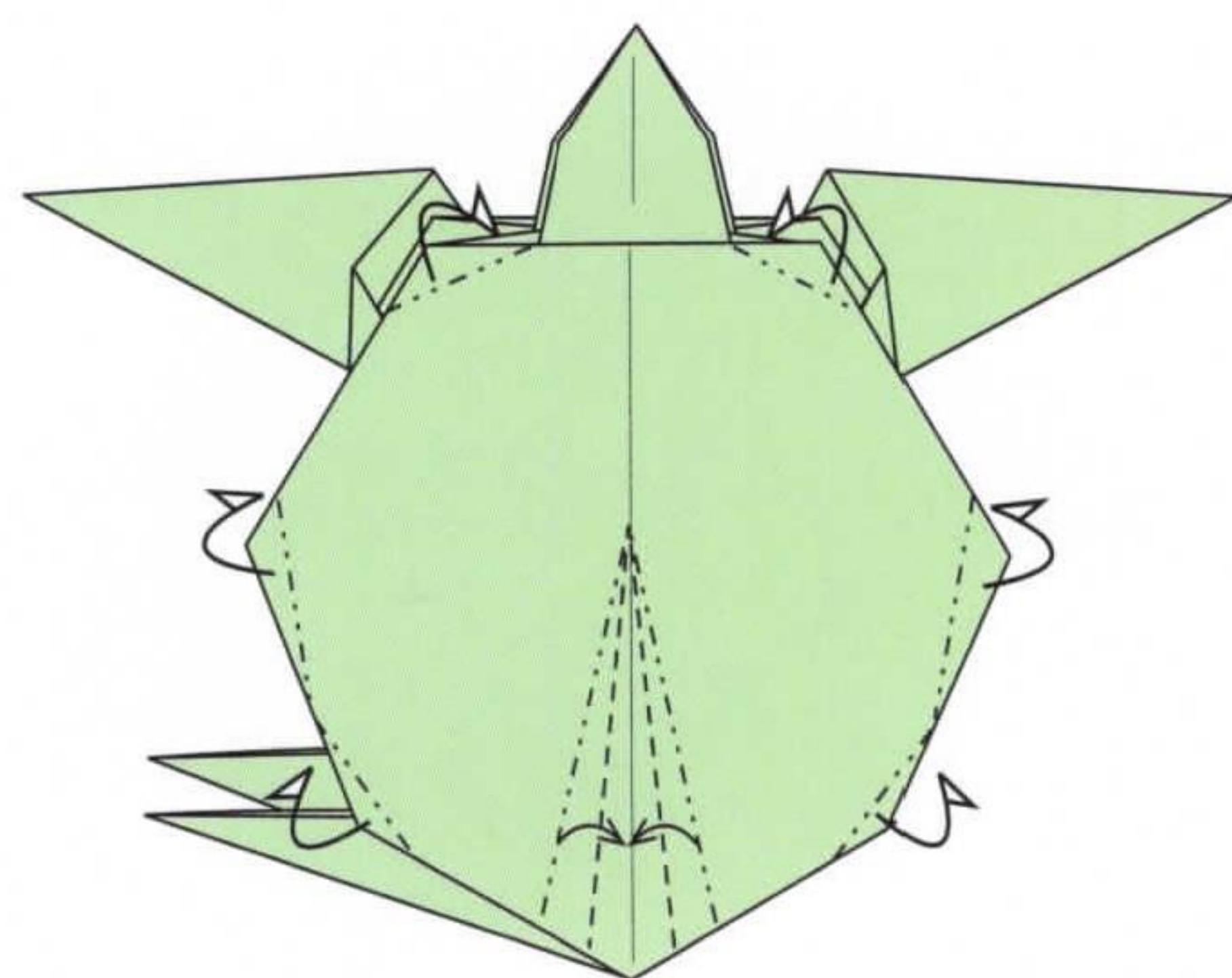
17. Belly view of the resulting hind flipper.



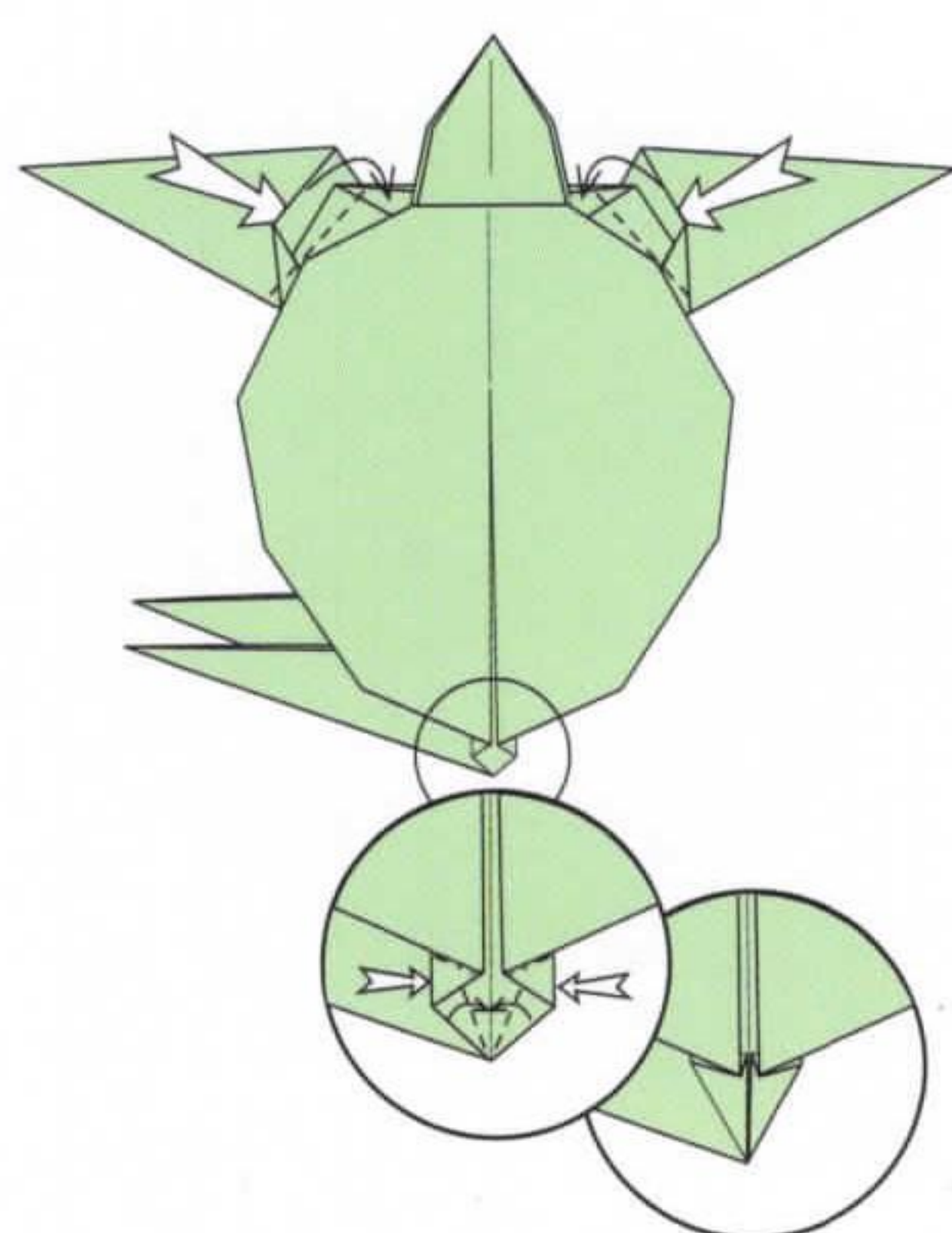
18. Valley-fold the bottom point in half and flatten to the right for a rear flipper. Note: Both rear flippers must point to the right. Valley-fold the base of the neck.



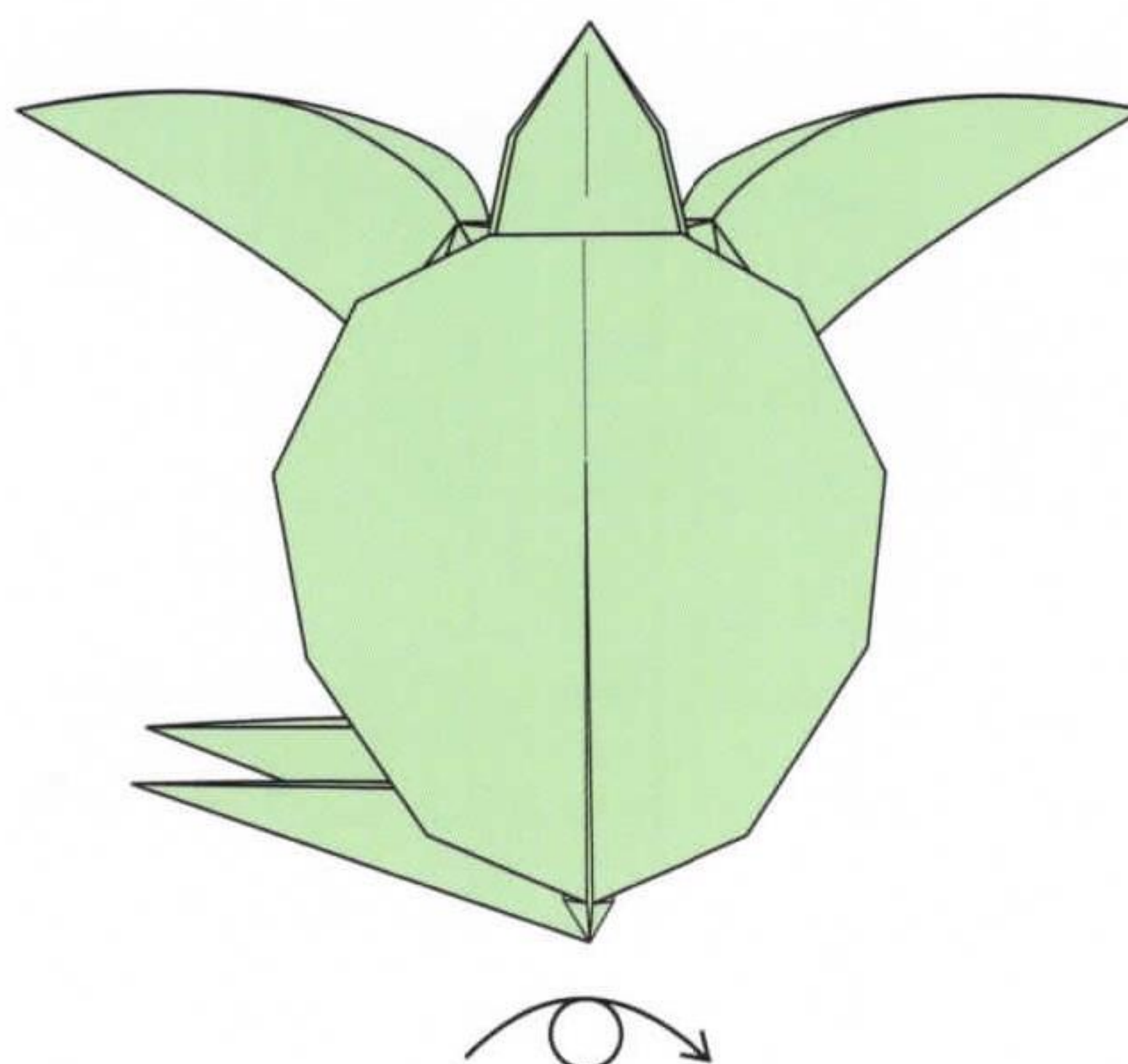
19. Narrow the base of the neck, pinching valleys and squashing. Turn over, left to right.



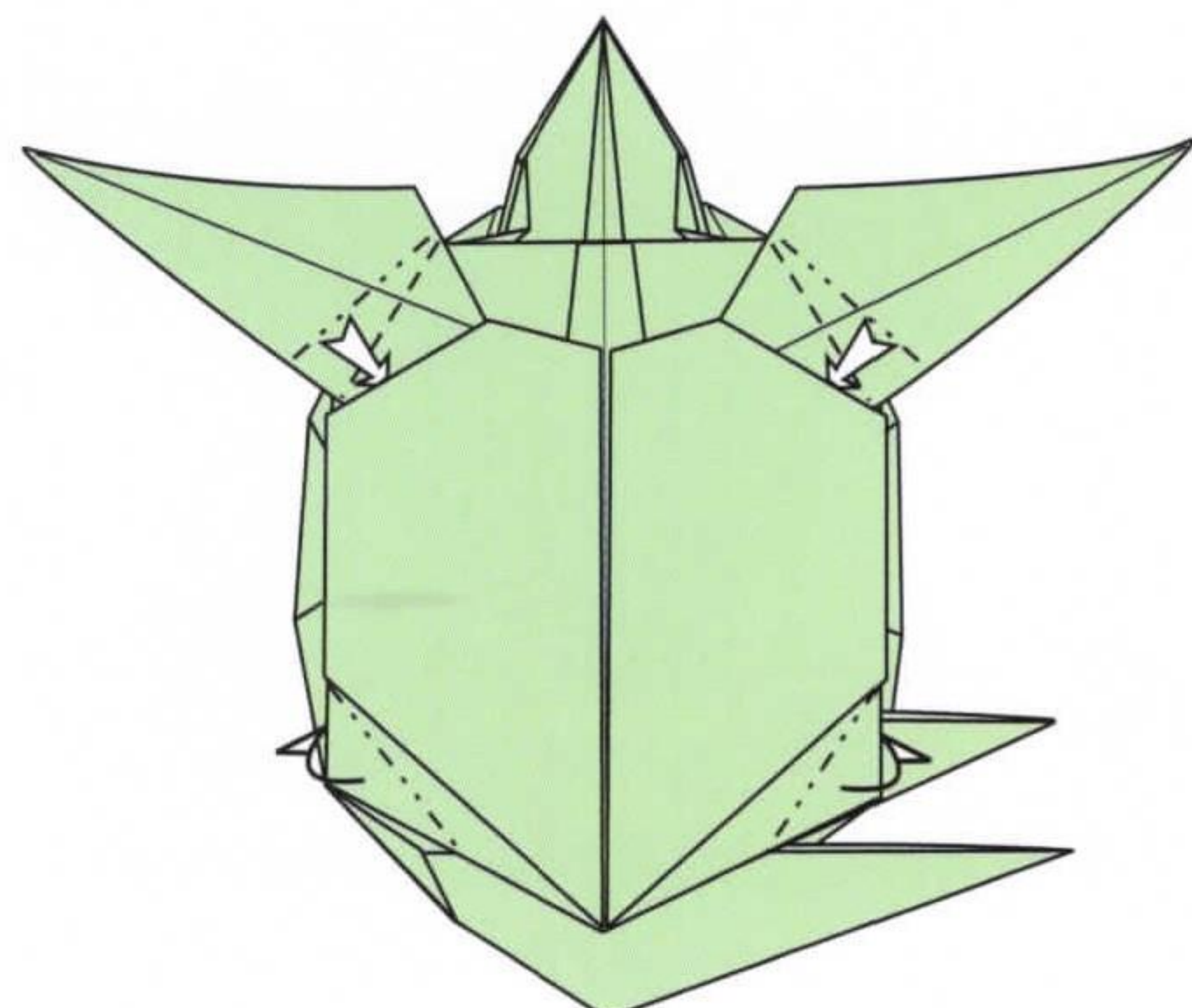
20. Form mountain and valley folds to create the upper dome of the shell. The mountain creases are valley-folded to meet at the center of the shell, making it cup. Round out the shape of the upper shell by tucking the corners beneath.



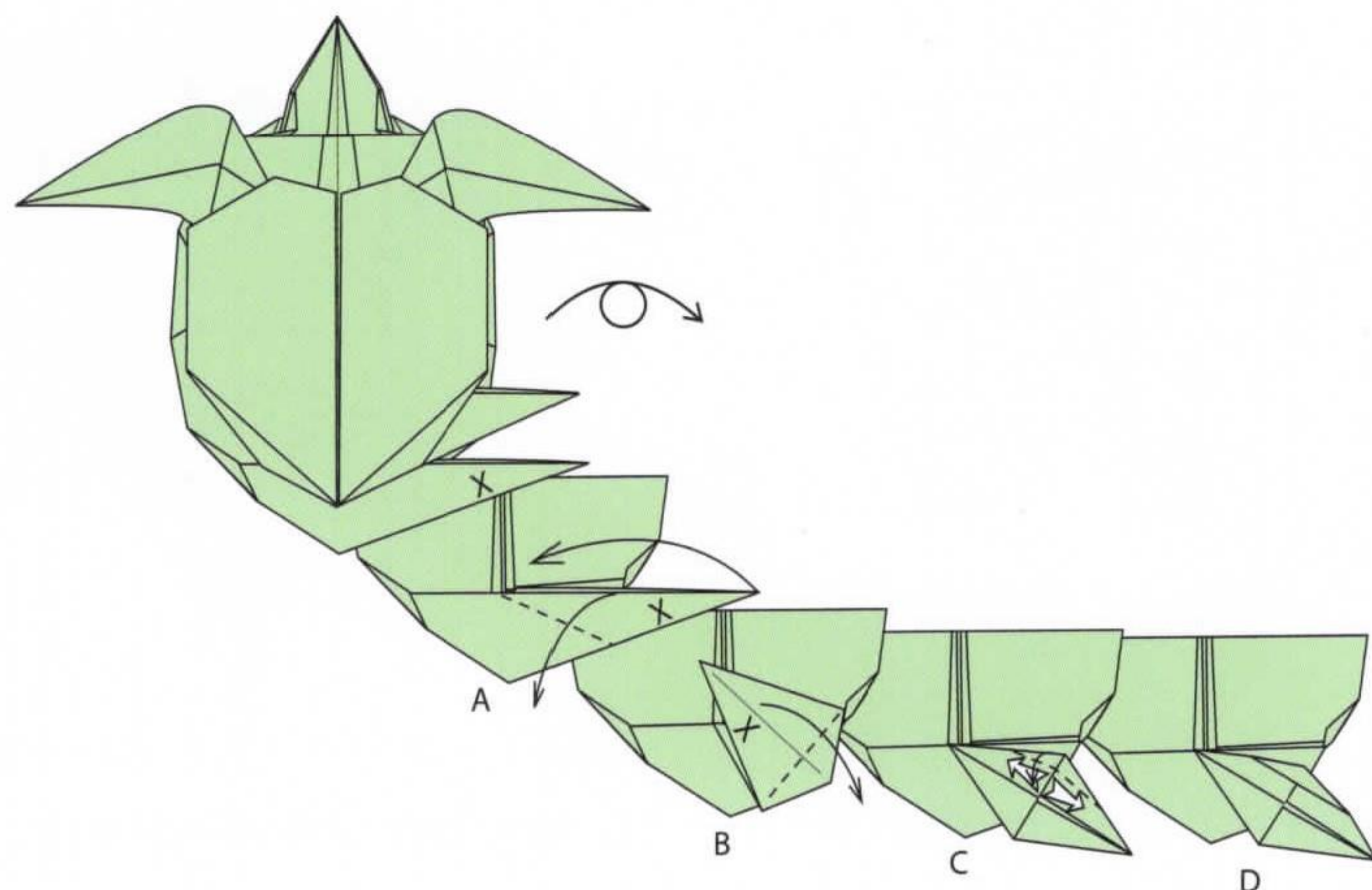
21. The end of the shell dart becomes the tail. Narrow the tail with inside-reverse folds. Fold the layers of paper at the shoulders tightly inside, making the front flippers curve gracefully.



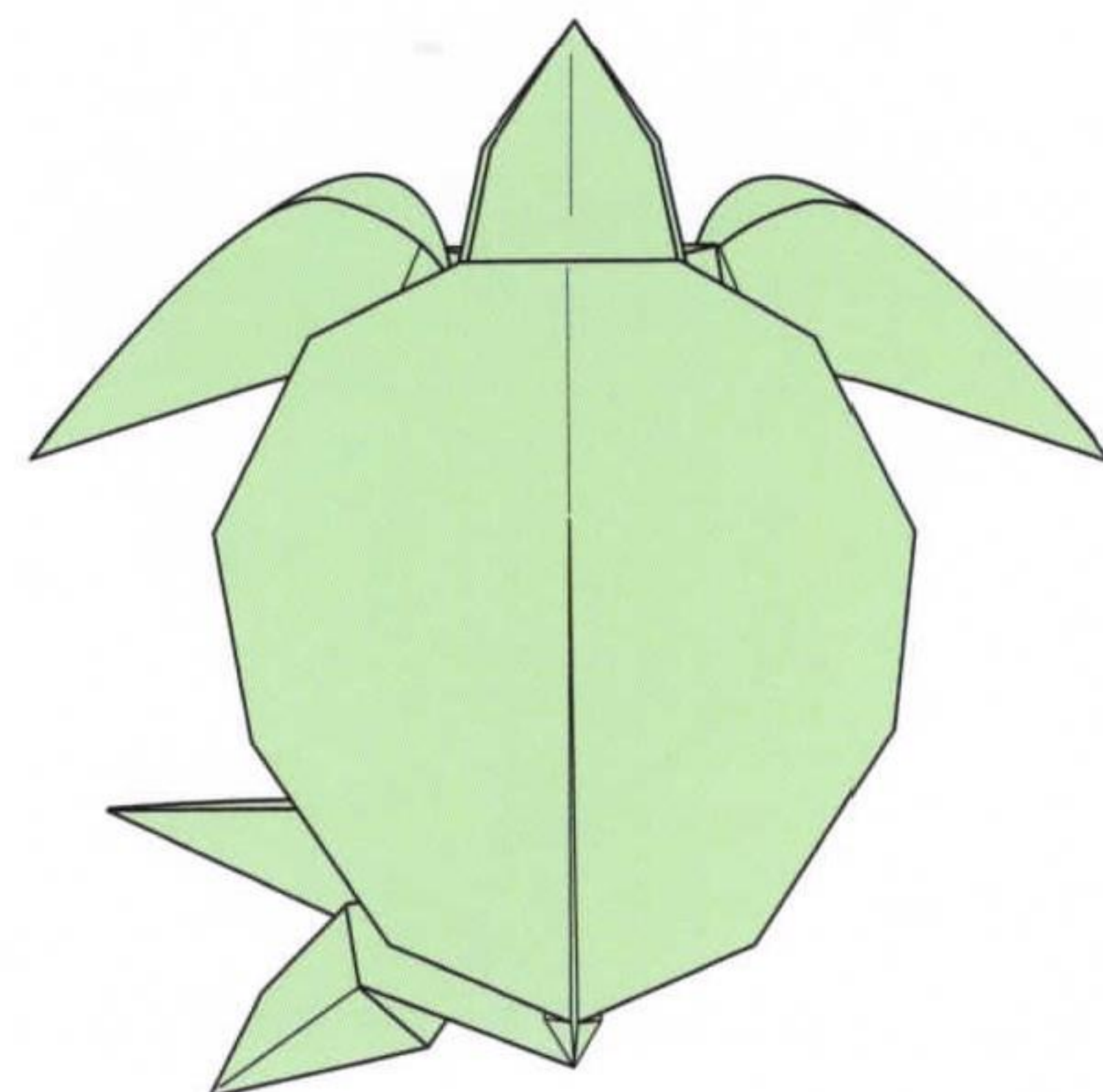
22. Turn over, left to right.



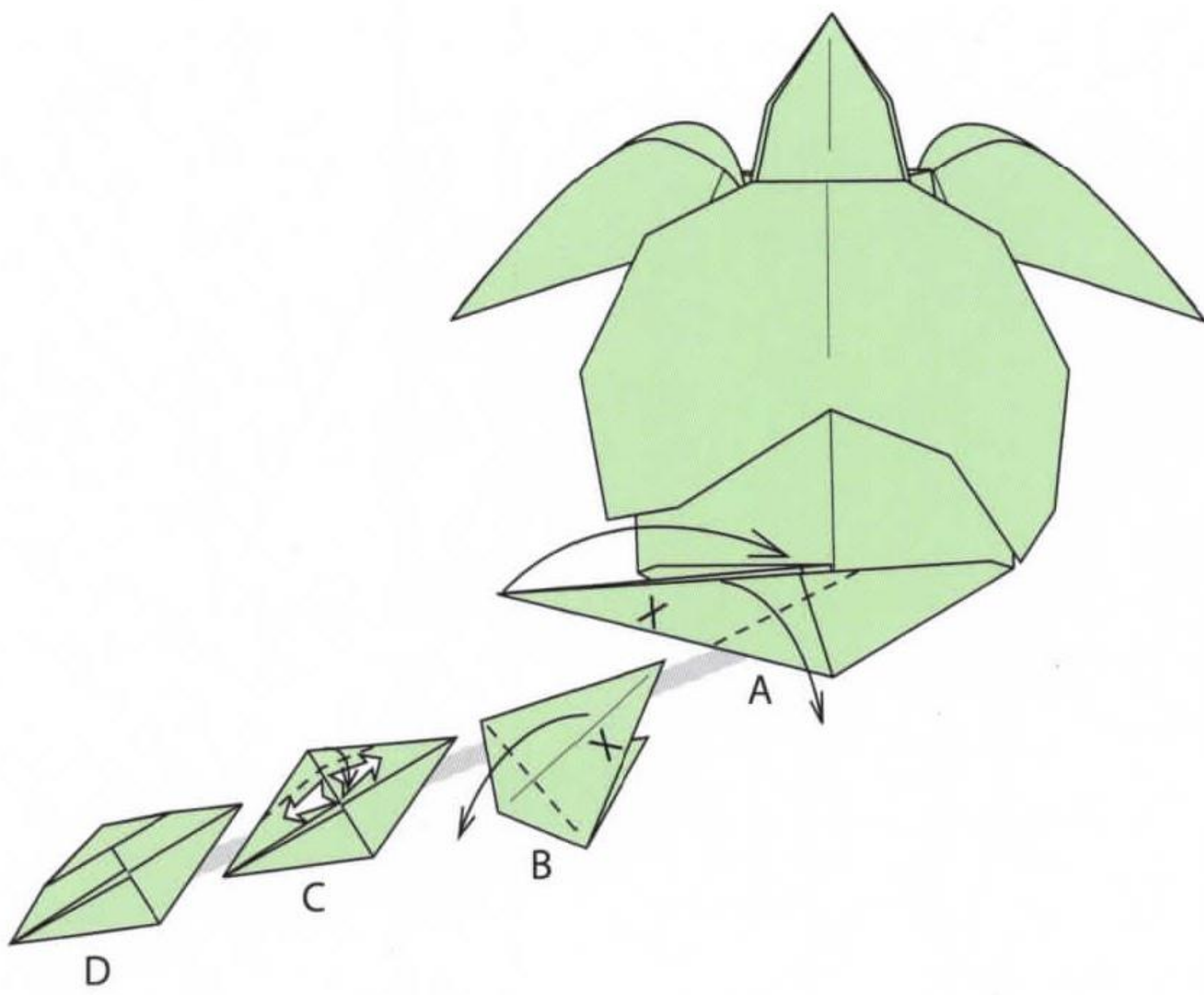
23. Tuck in the base of the undersides of the front flippers. Mountain-fold the bottom corners of the plastron (belly plate).



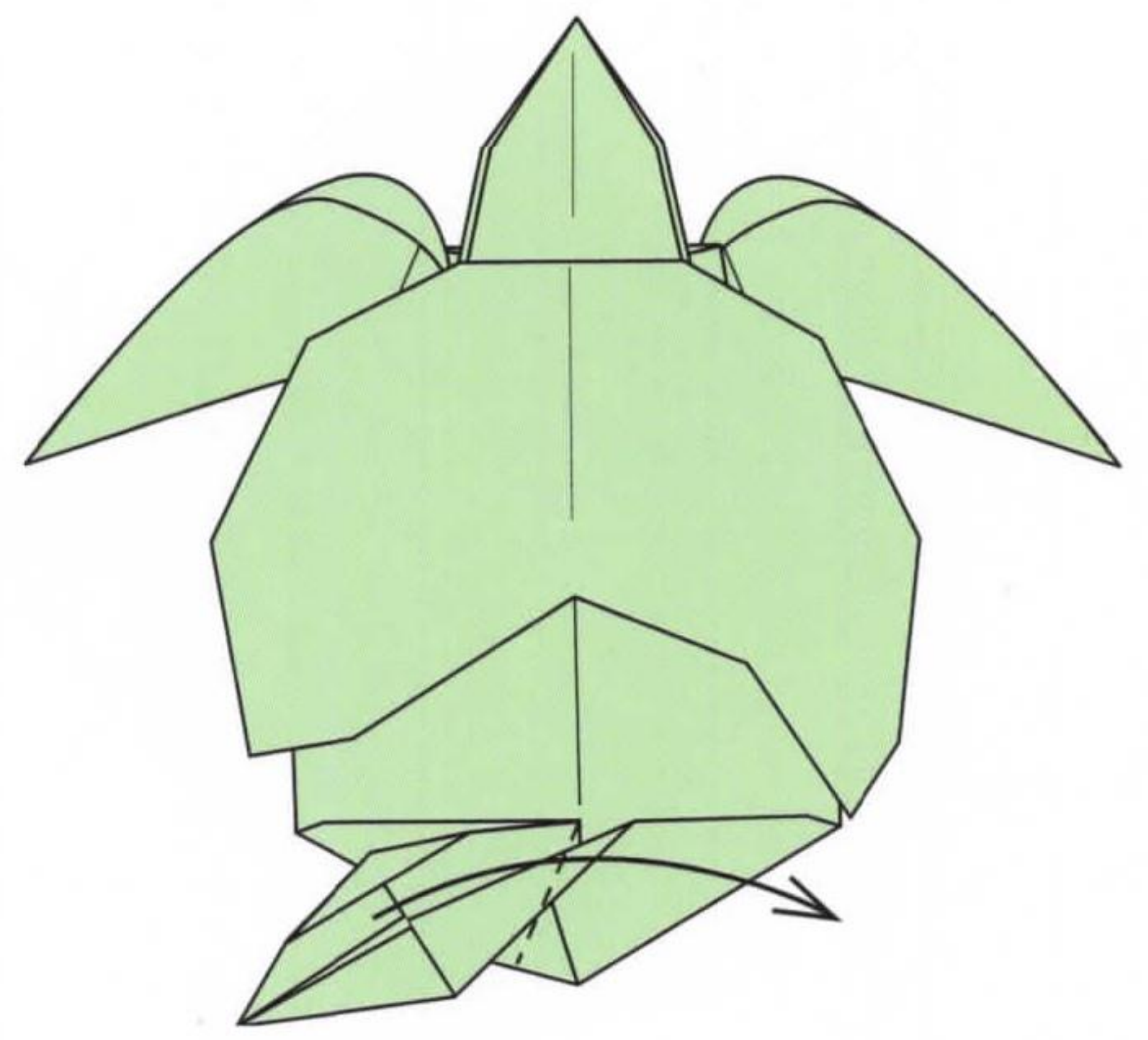
24. (A) Fold down the flipper, marked "X," and squash-fold. (B) Fold over. (C) Stretch the top edge of the flipper and fold down. (D) The completed flipper. Turn the model over.



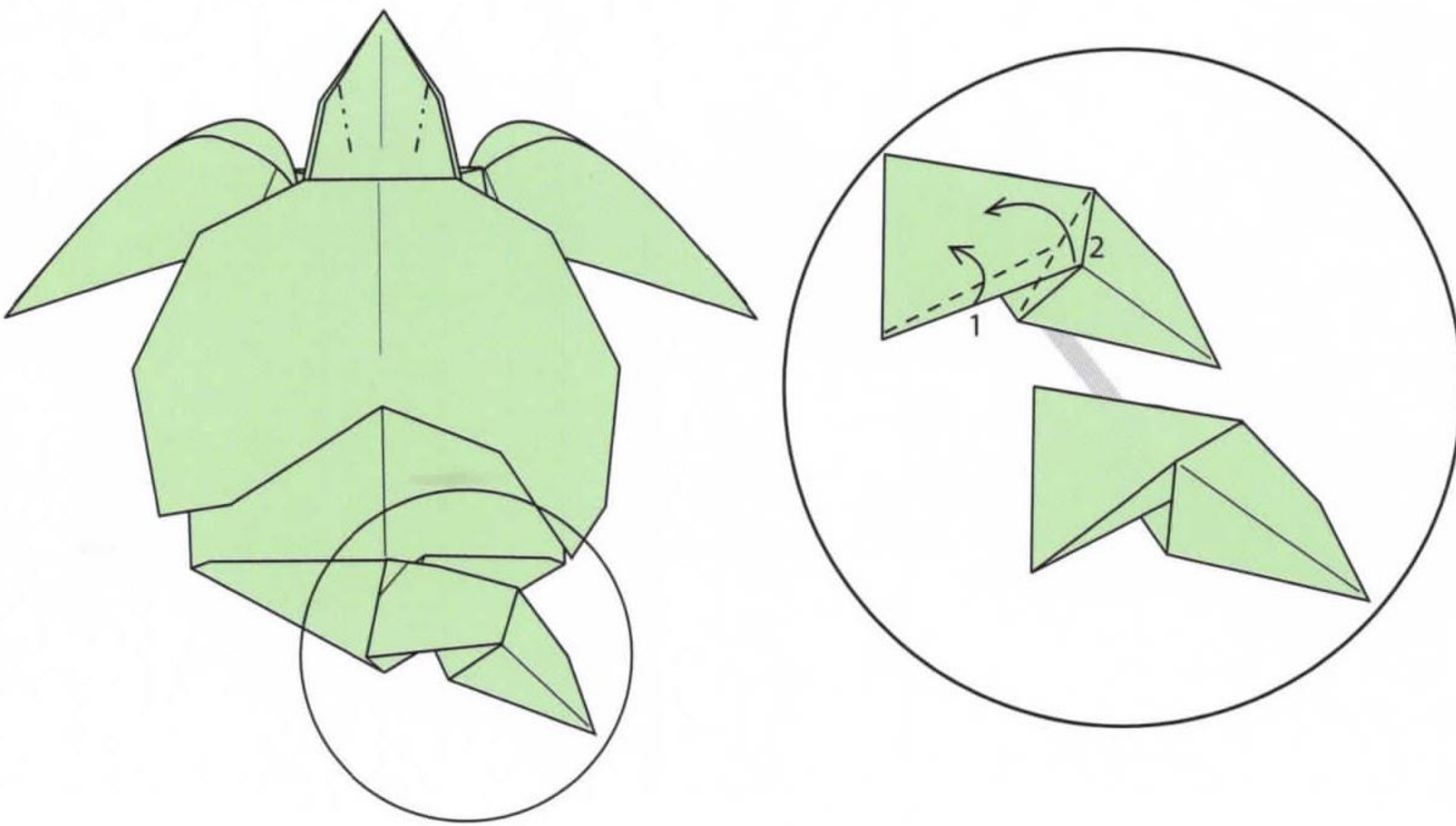
25. Top view.



26. Repeat shaping for the other rear flipper: Open the upper shell layer to expose the flipper layers. (A) Fold down the flipper, marked "X," and squash-fold. (B) Fold over. (C) Stretch the top edge of the flipper and fold down. (D) The completed flipper.

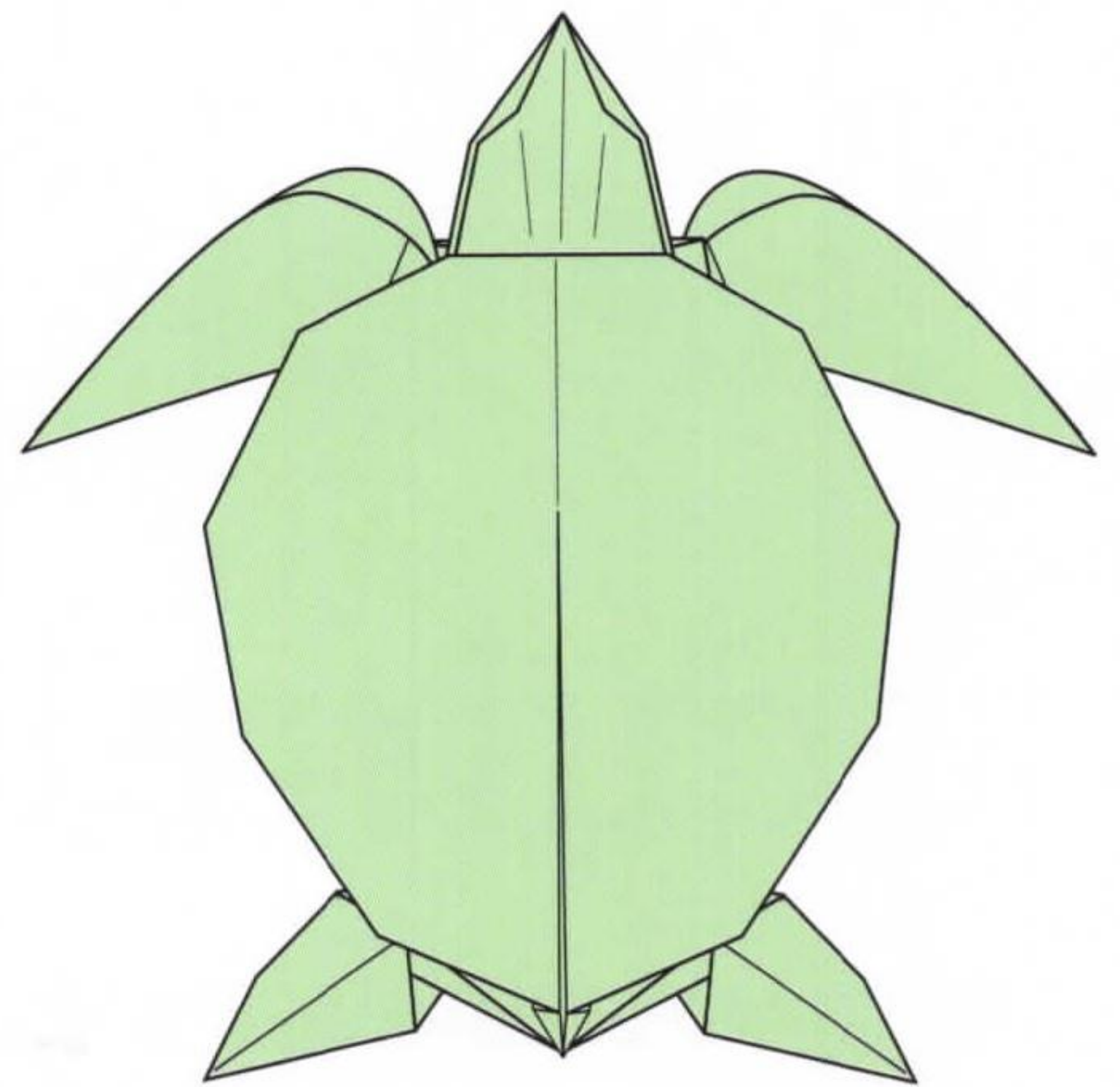


27. Fold the flipper across to the other side.



28. Pinch mountain creases in the head. Close-up view of the exposed flipper.

29. Fold up the edge marked "1," and then fold over corner "2." Repeat on the other flipper.



30. The finished Sea Turtle.

squirrel

Designed by Michael G. LaFosse

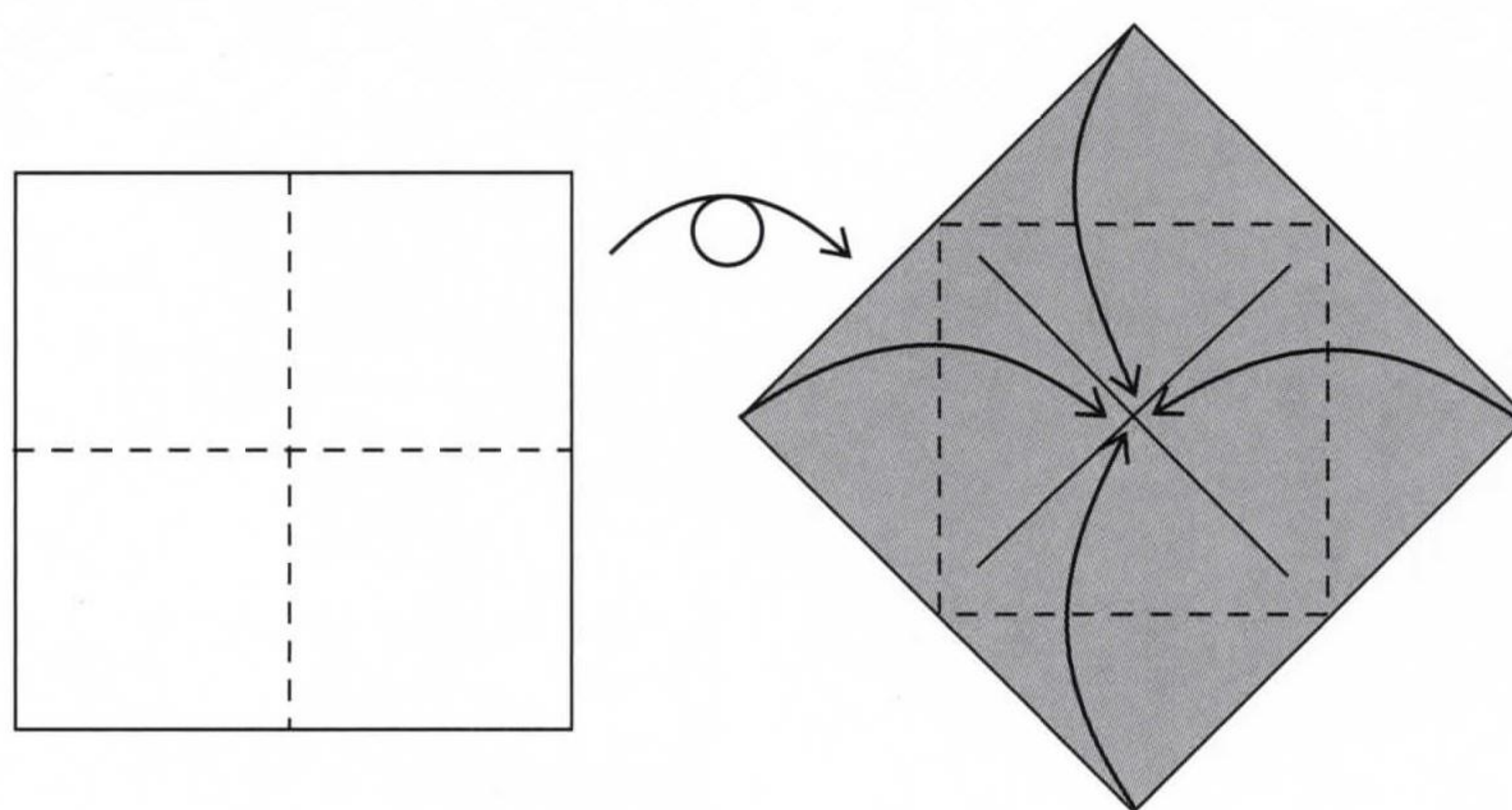


The huge oak tree that shades the deck along the west end of my house produces enough nuts to keep the squirrels busy all season. If acorns were dollars, our squirrels would be millionaires. I designed this origami squirrel after watching one watch me work.

This is a good example of “inside-out” origami, a model that takes good advantage of both sides of duo (two-color) paper. The success of this model depends upon judging the proper proportions for the tail. Large and light, the tail must balance the whole creature, just as a real squirrel’s tail enables it to leap gracefully from limb to limb over great distances. Notice how the delicate folding style about the head and ears reveals the essence of a real squirrel’s head and face, with minimal indentations, just a hint of an eye or cheek.

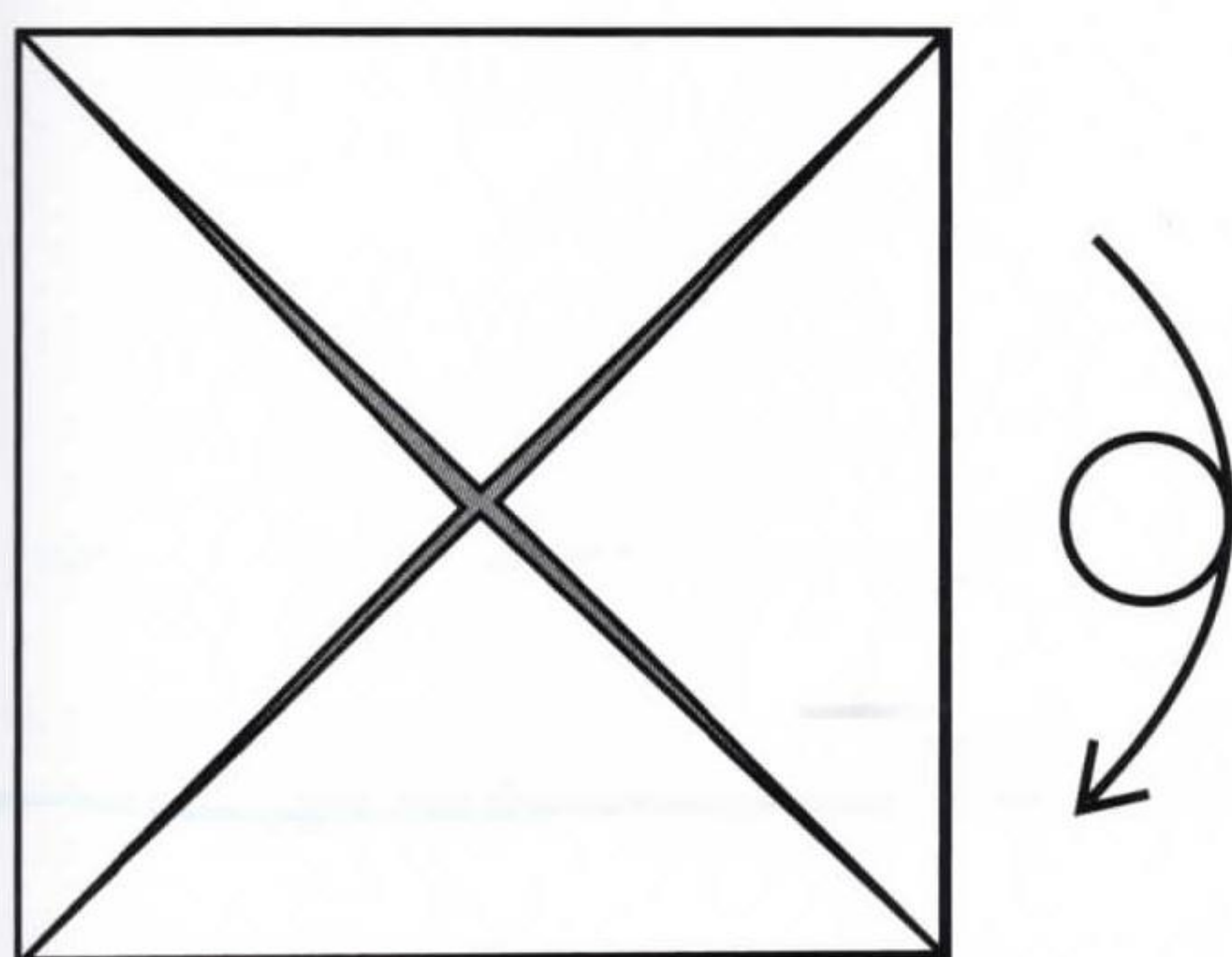
PAPER SUGGESTIONS

Use a 23-inch (58-cm) square piece of paper for a life-size model. Most squirrels in North America are gray, reddish or black, with a lighter shade on the belly. Use a duo paper or back-coat two sheets together to take advantage of this “inside-out” or “color-change” design.

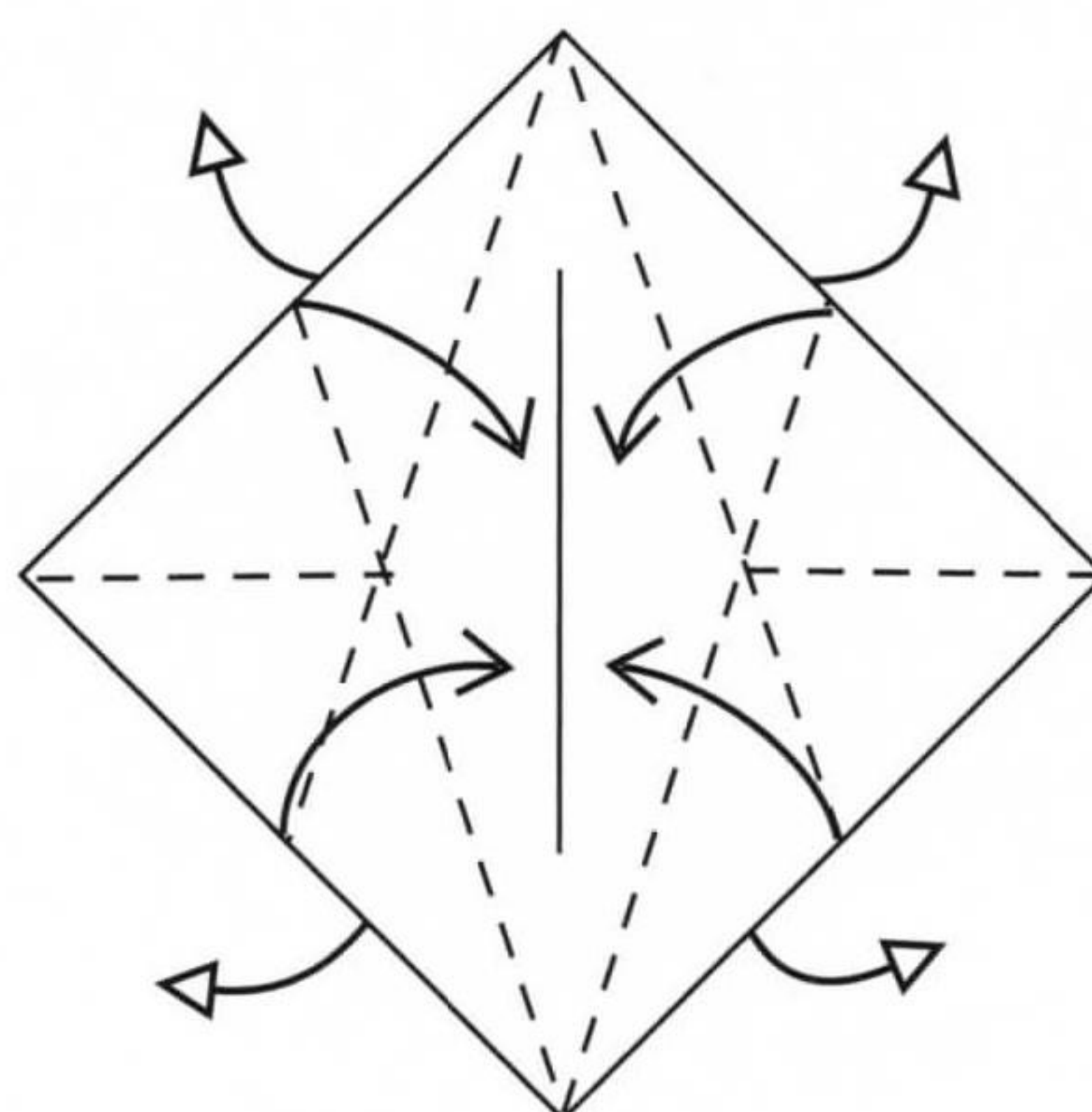


1. Begin with the lighter side up. Fold in half, edge to edge, both ways, and unfold. Turn the paper over.

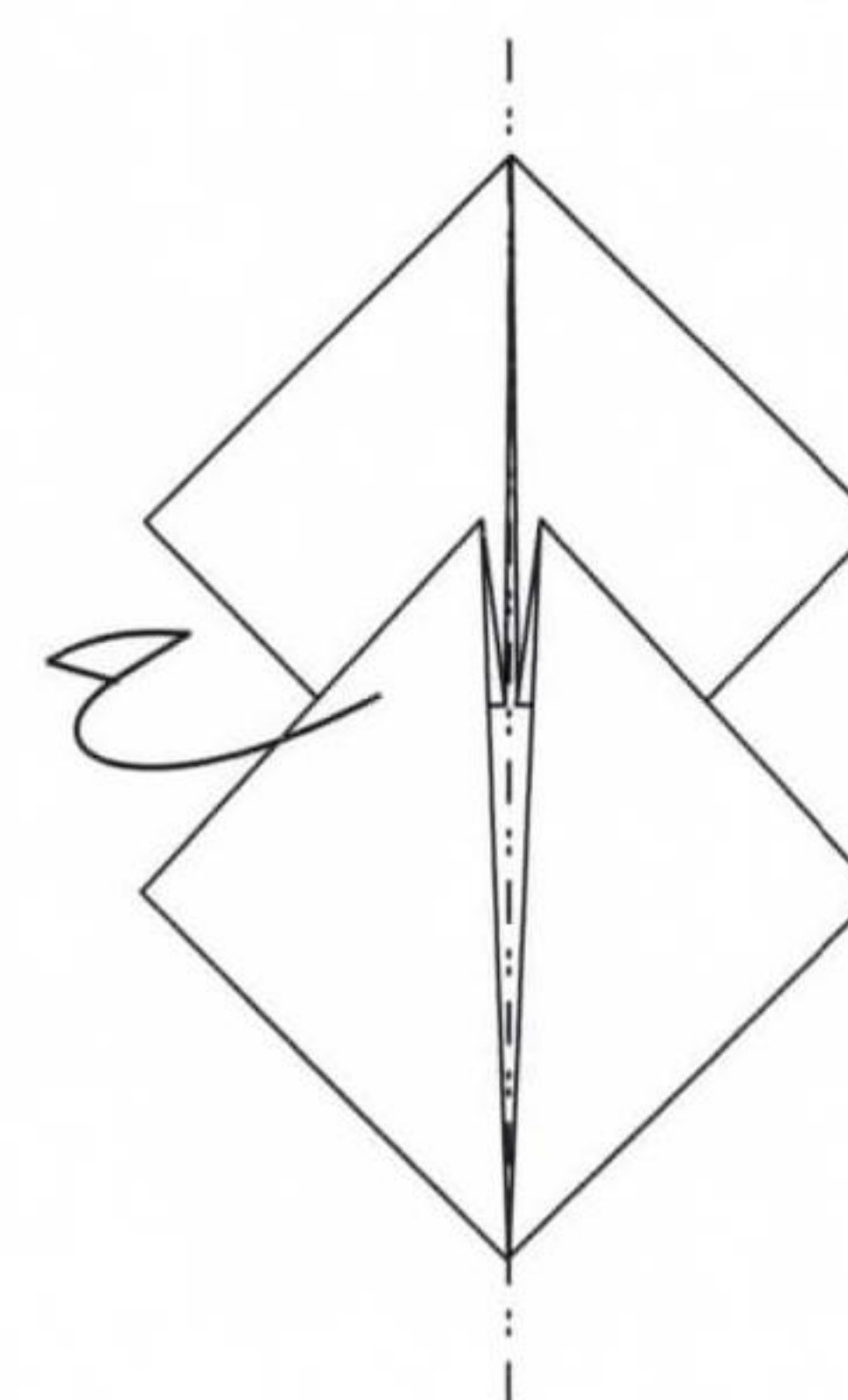
2. Fold all four corners to the center.



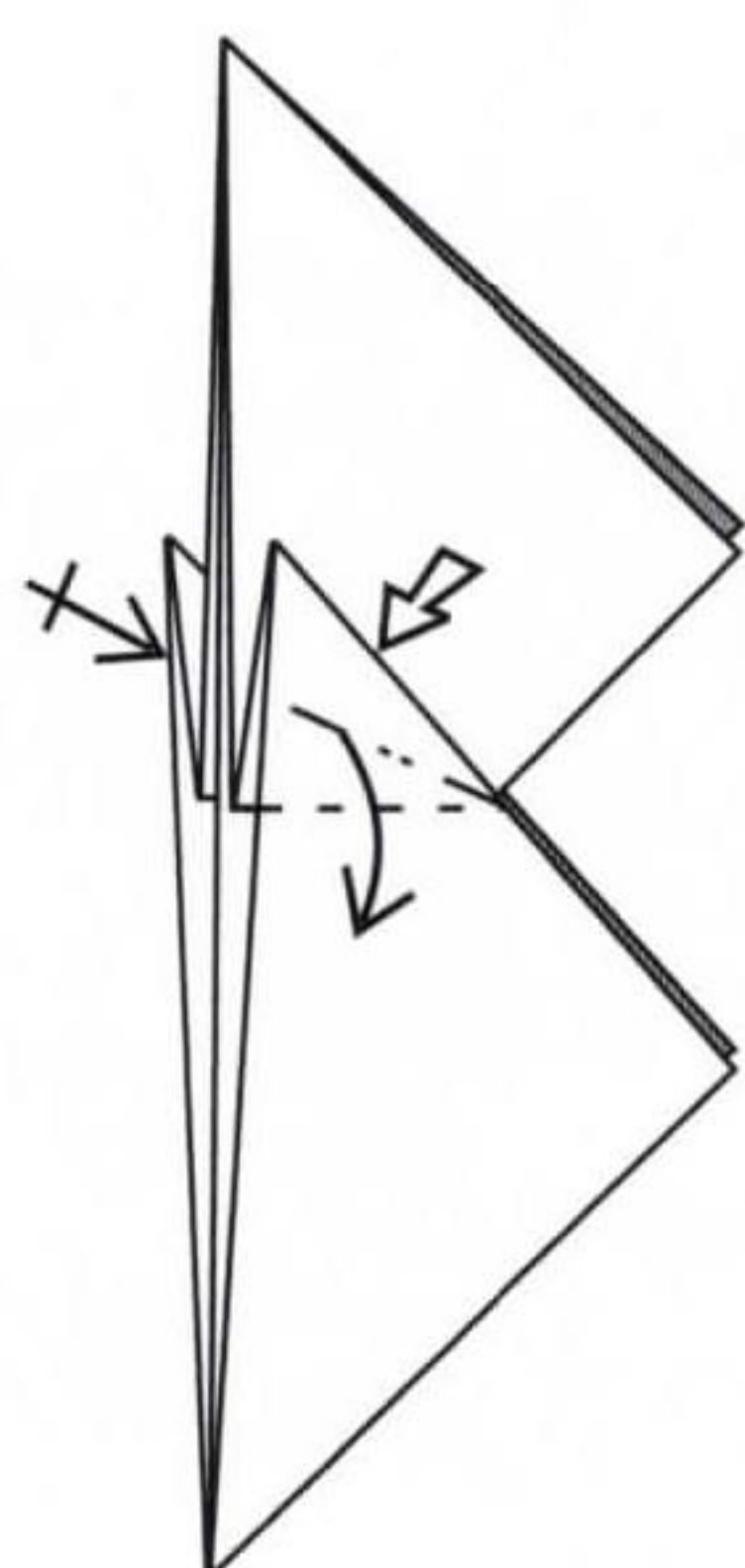
3. Turn over.



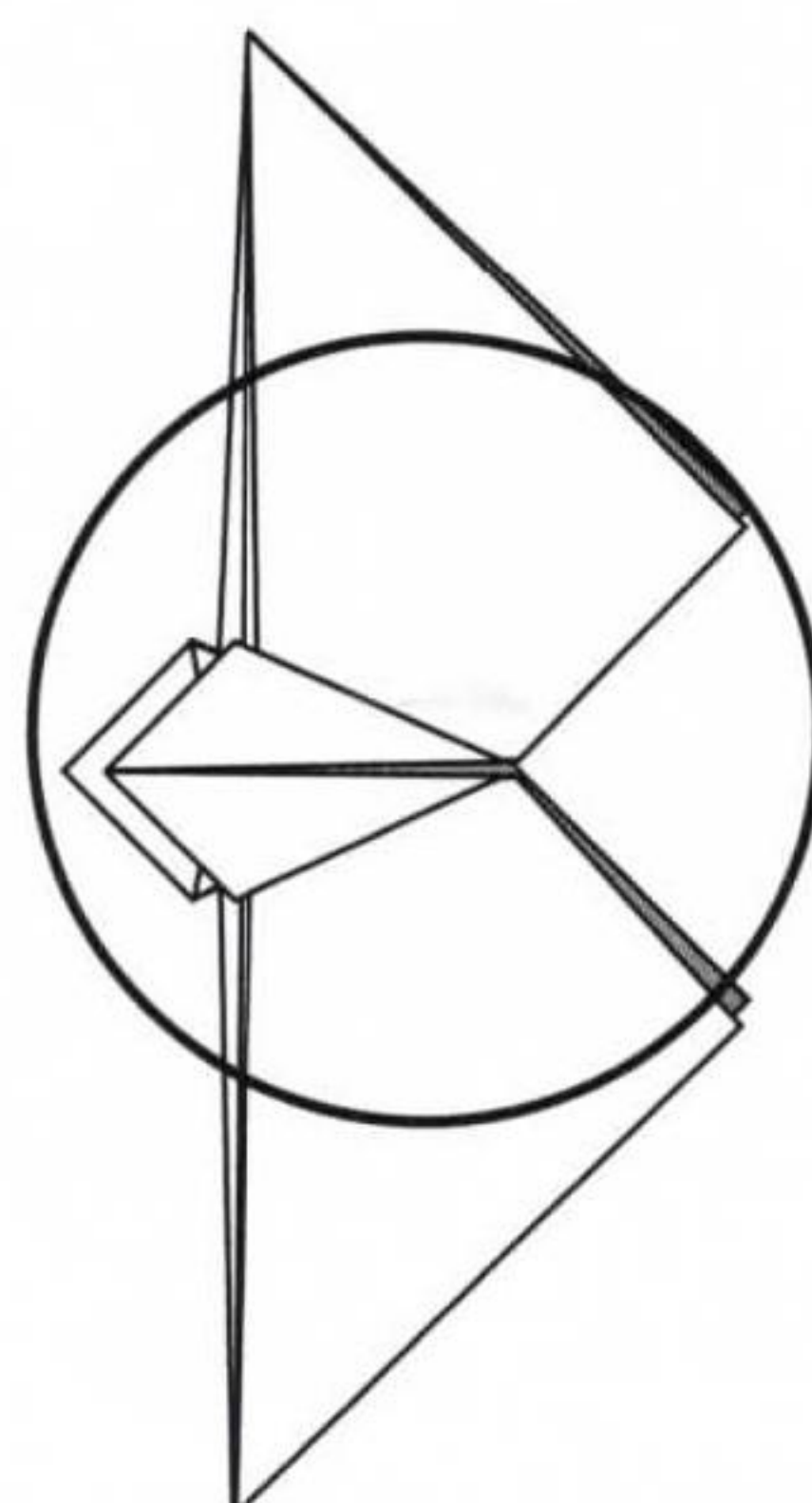
4. Fold the left and right corners in half. Fold each edge of the diamond to the vertical center crease. Allow the back corners to come out from behind.



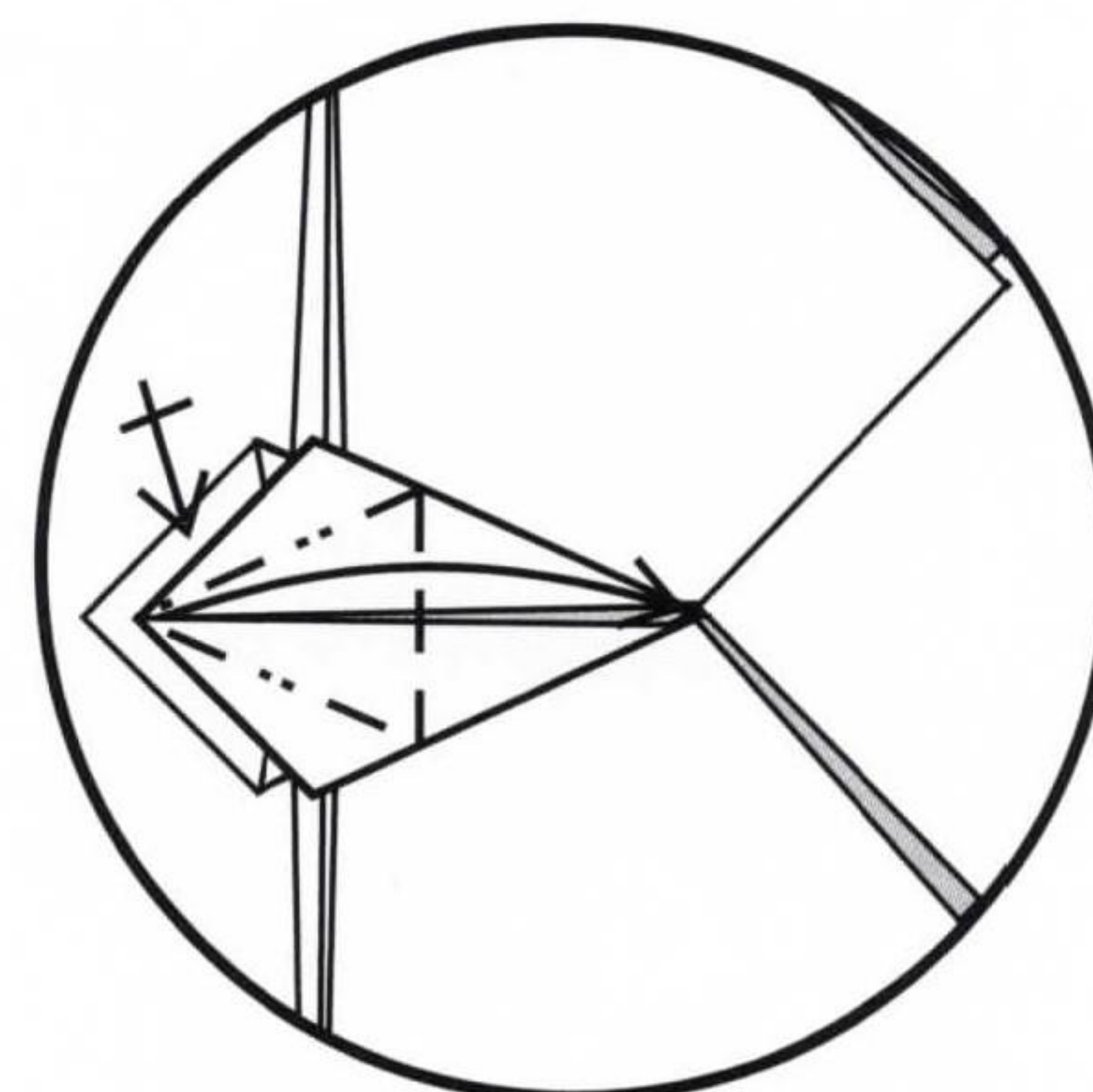
5. Mountain-fold the model in half.



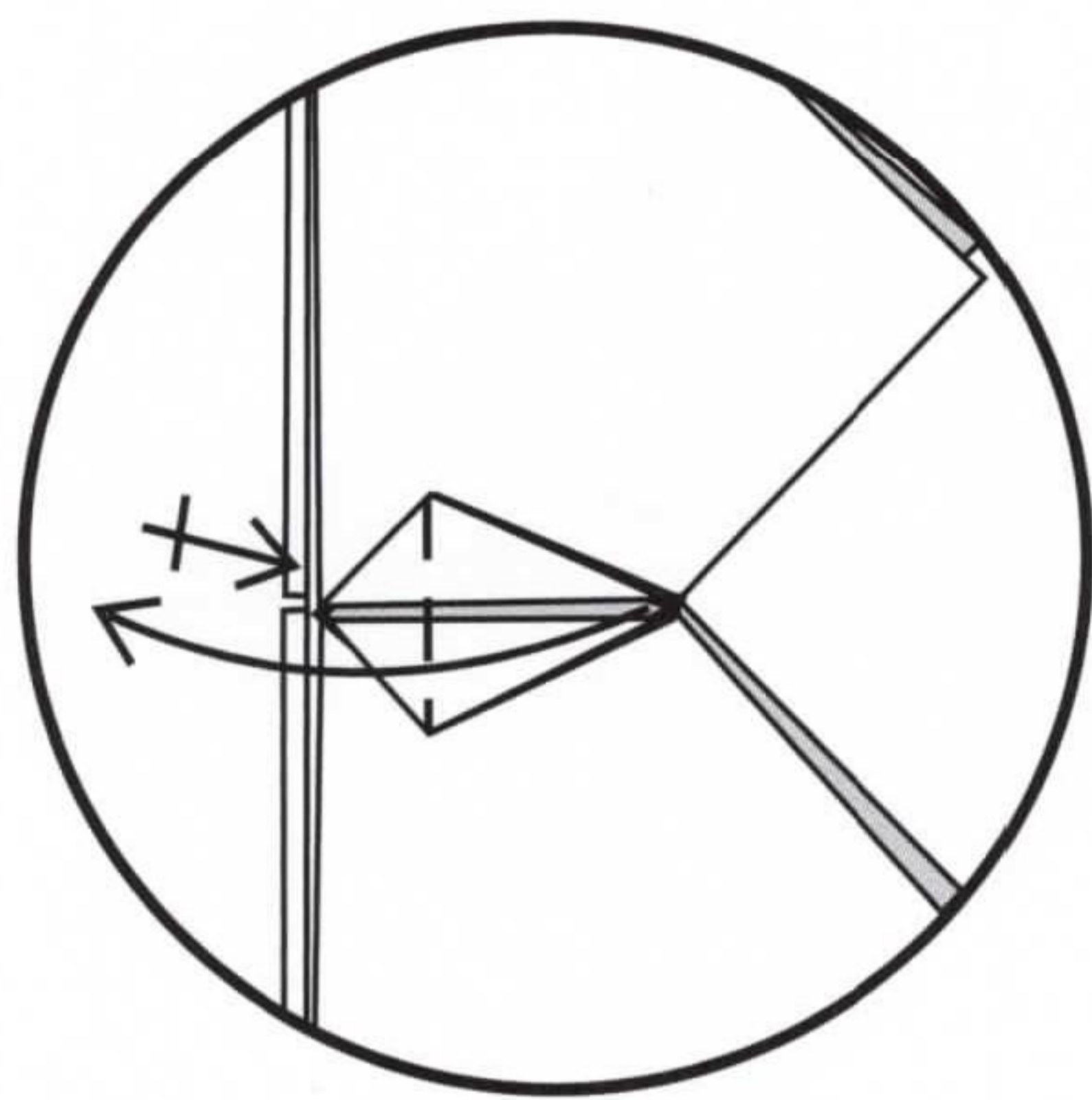
6. Squash-fold the middle corners, front and back.



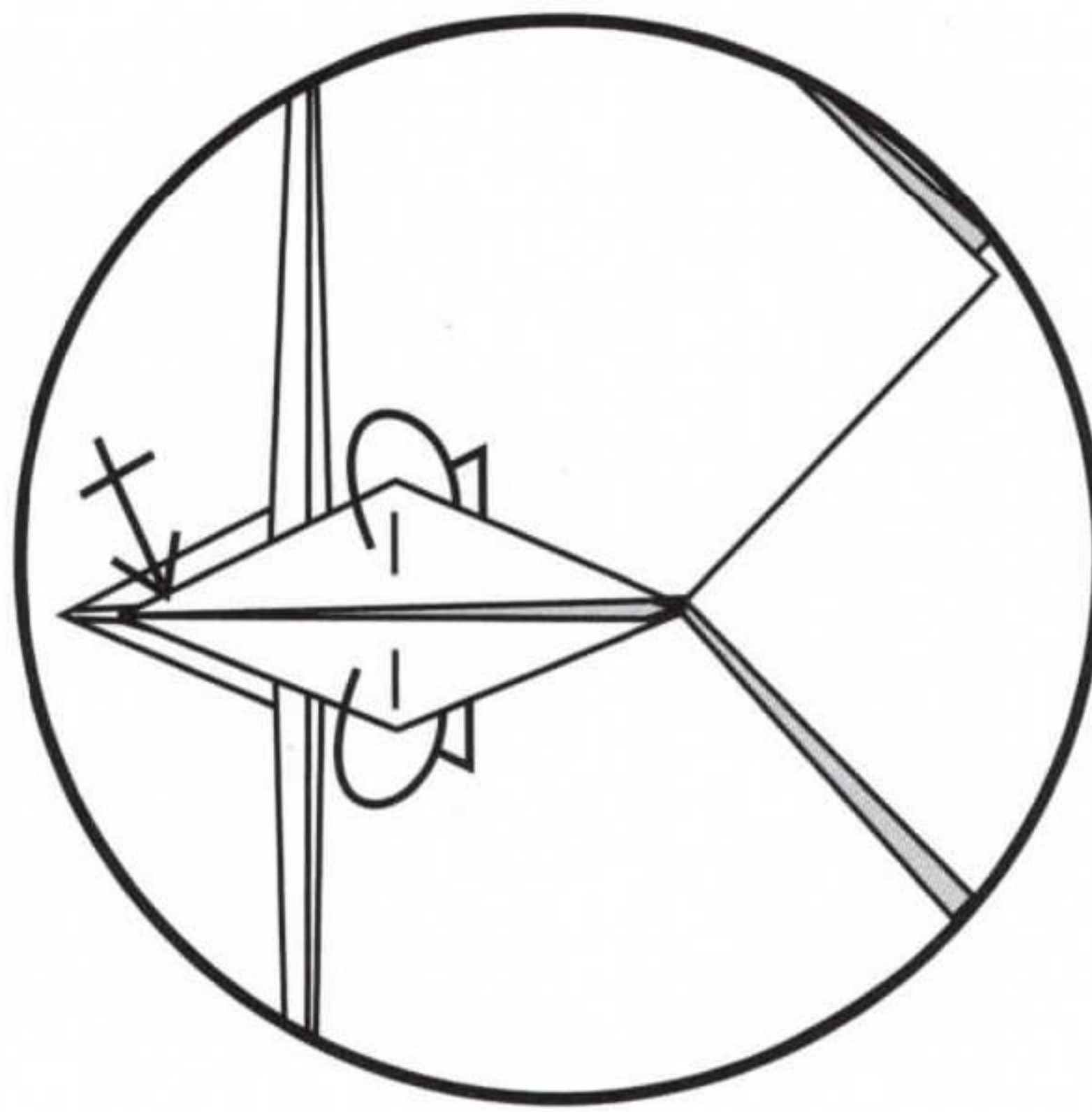
7. Zoom view to step 8.



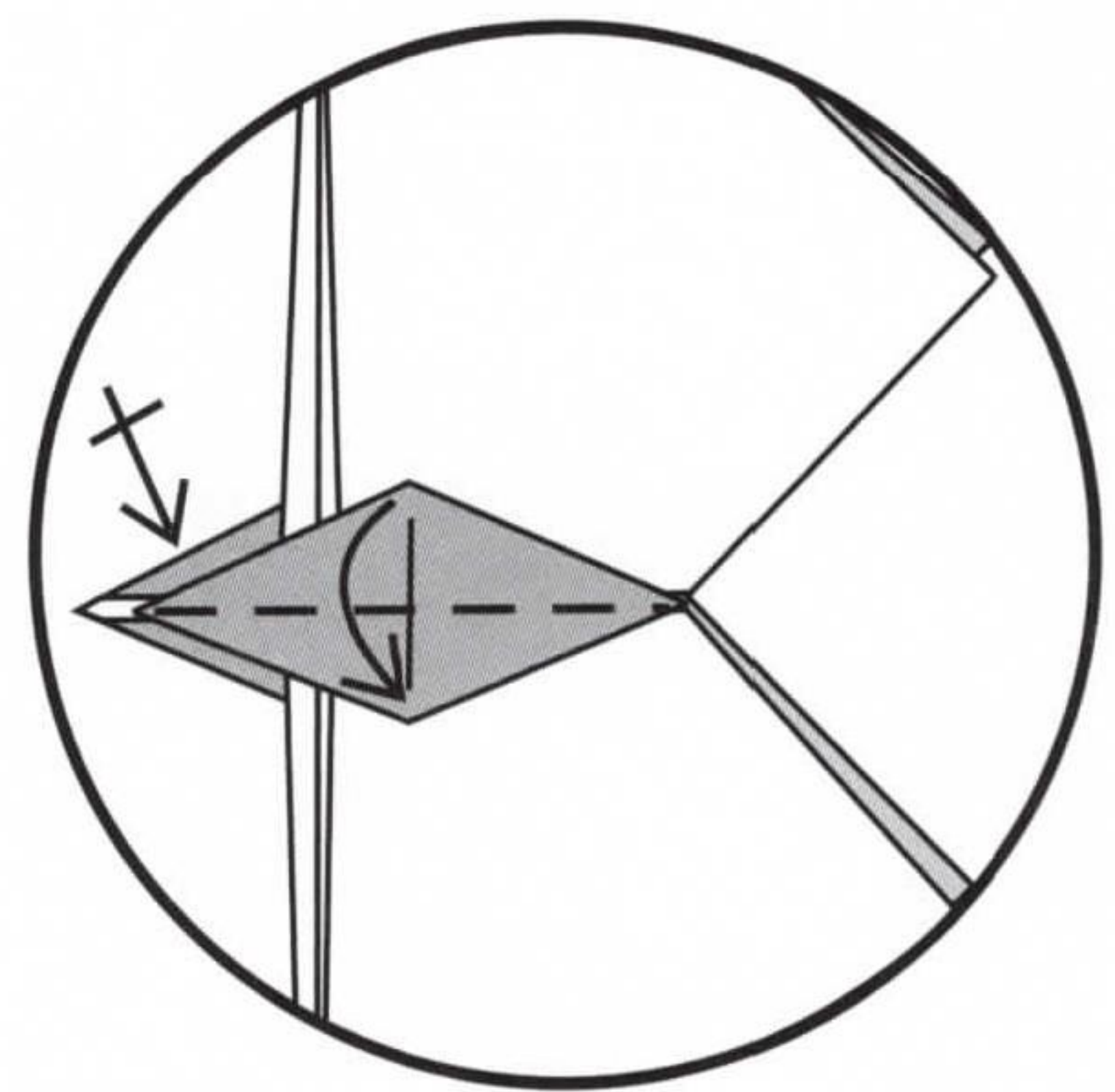
8. Petal-fold. Repeat on the back.



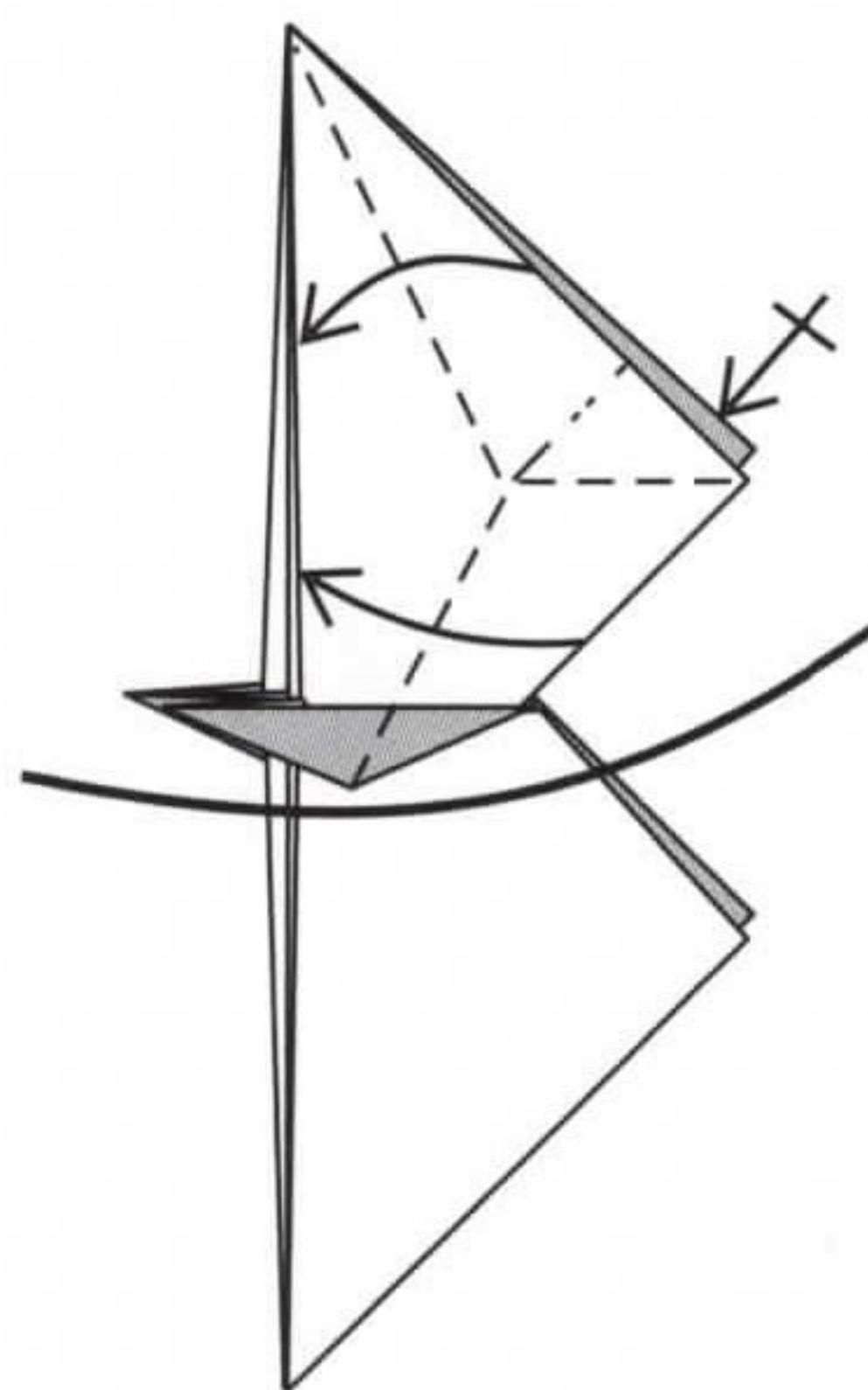
9. Bring the point back to the left. Repeat on the back.



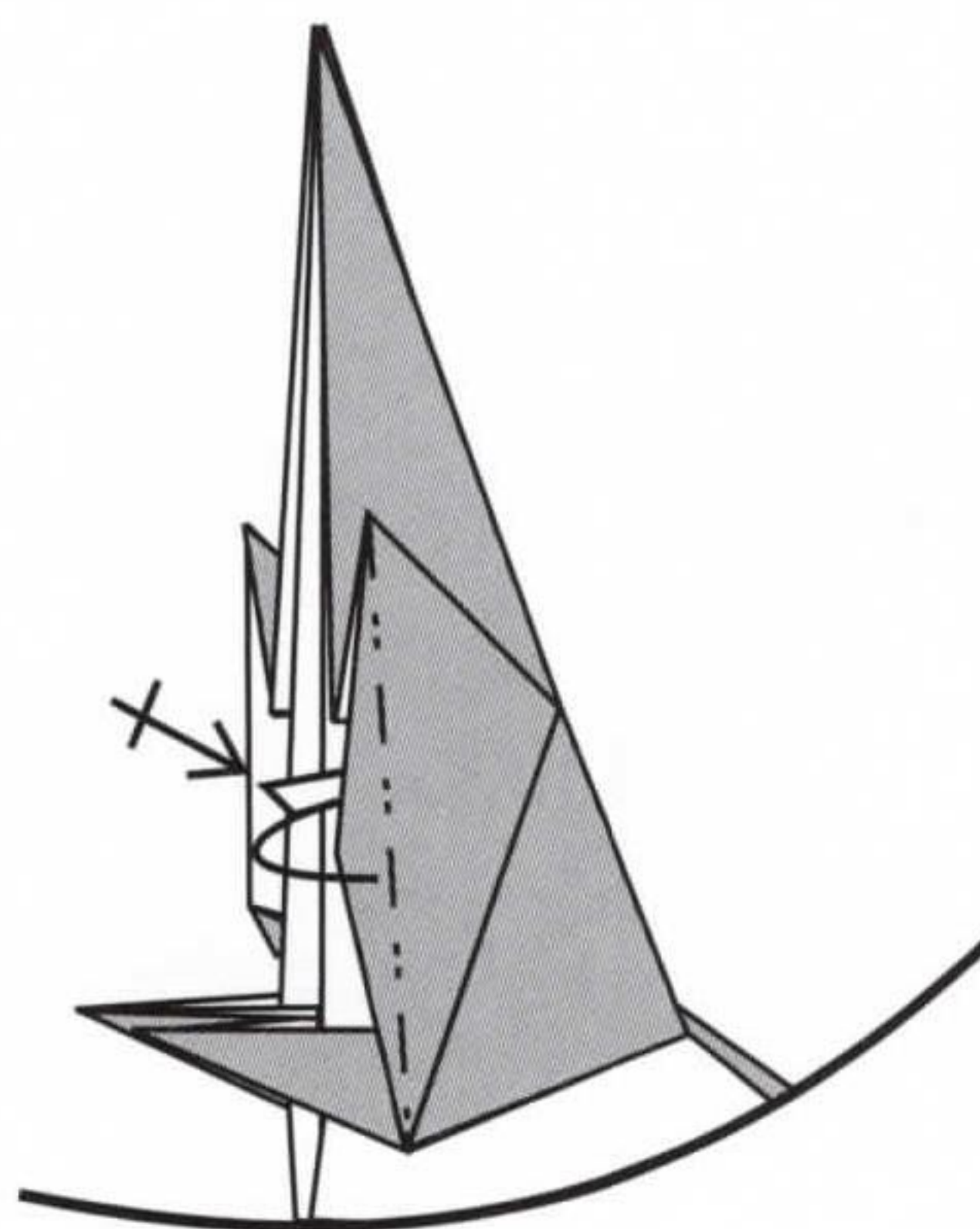
10. Color-change the diamond shape by turning the sides inside out. Repeat on the back.



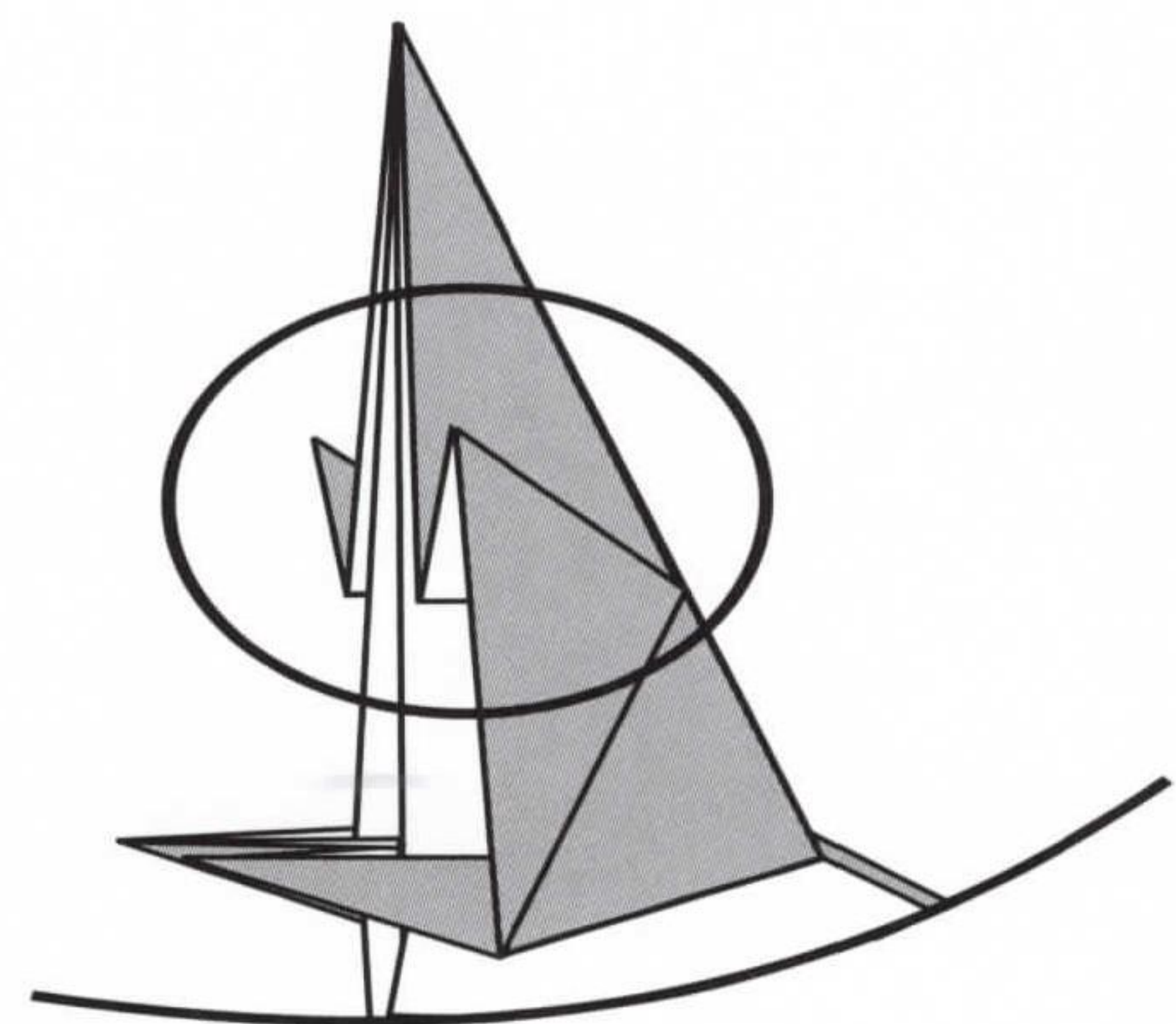
11. Fold the diamond in half, top corner to bottom. Repeat on the back.



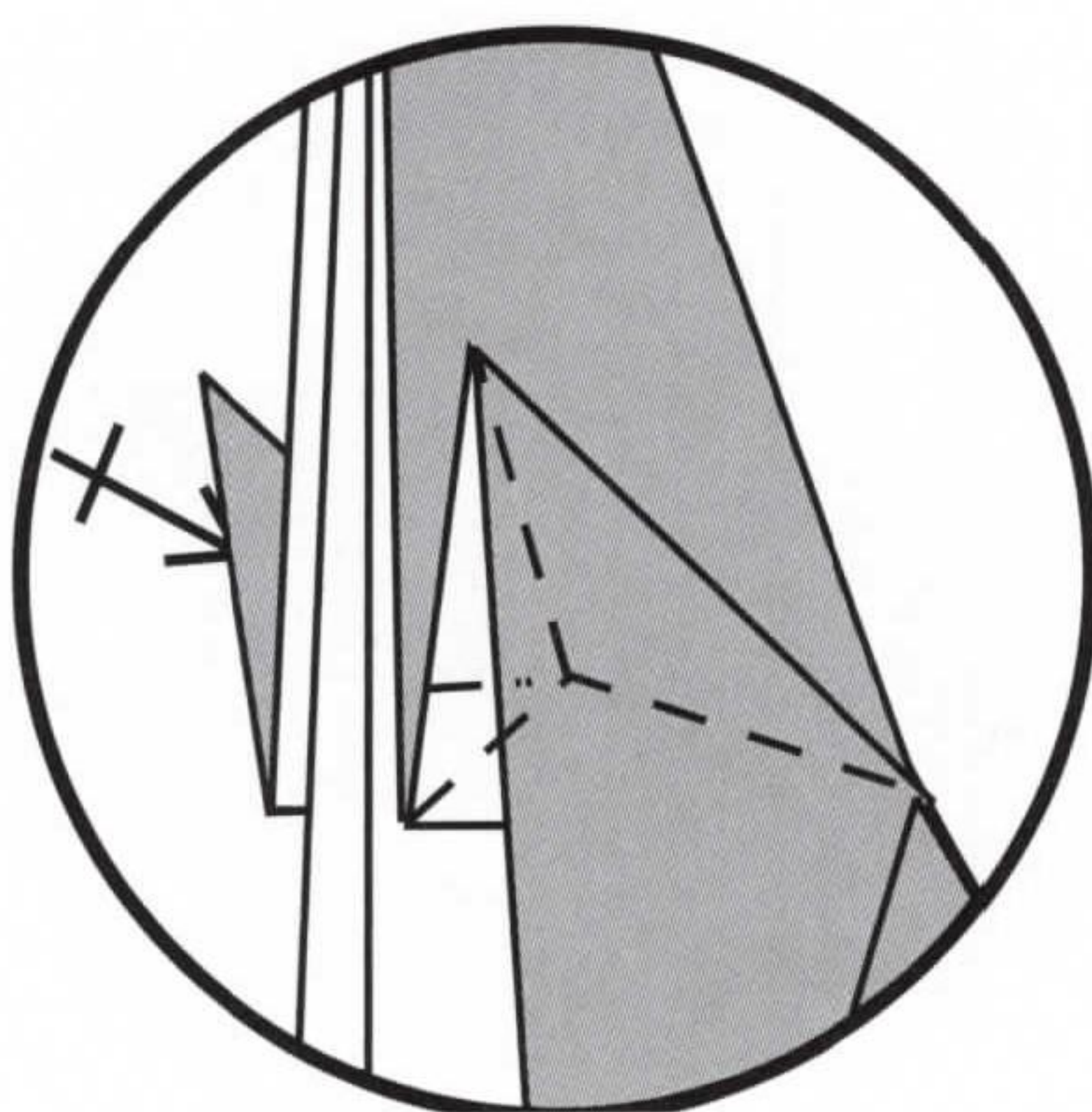
12. Fold the top right corner in half and align the edges to the left side of the paper. Flatten with the point up. Repeat on the other side.



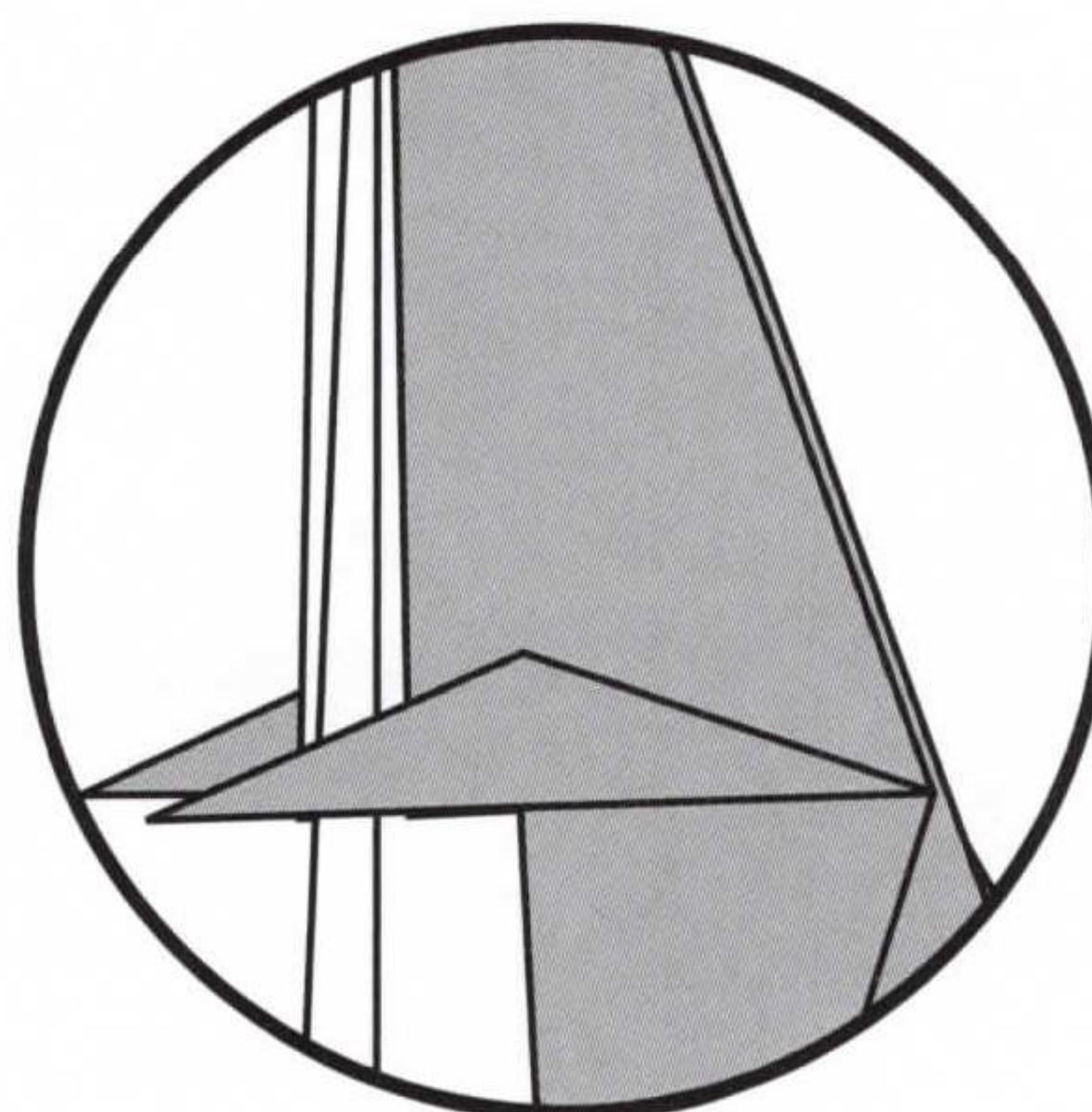
13. Tuck the excess paper inside to clean up the triangle. Repeat on the back.



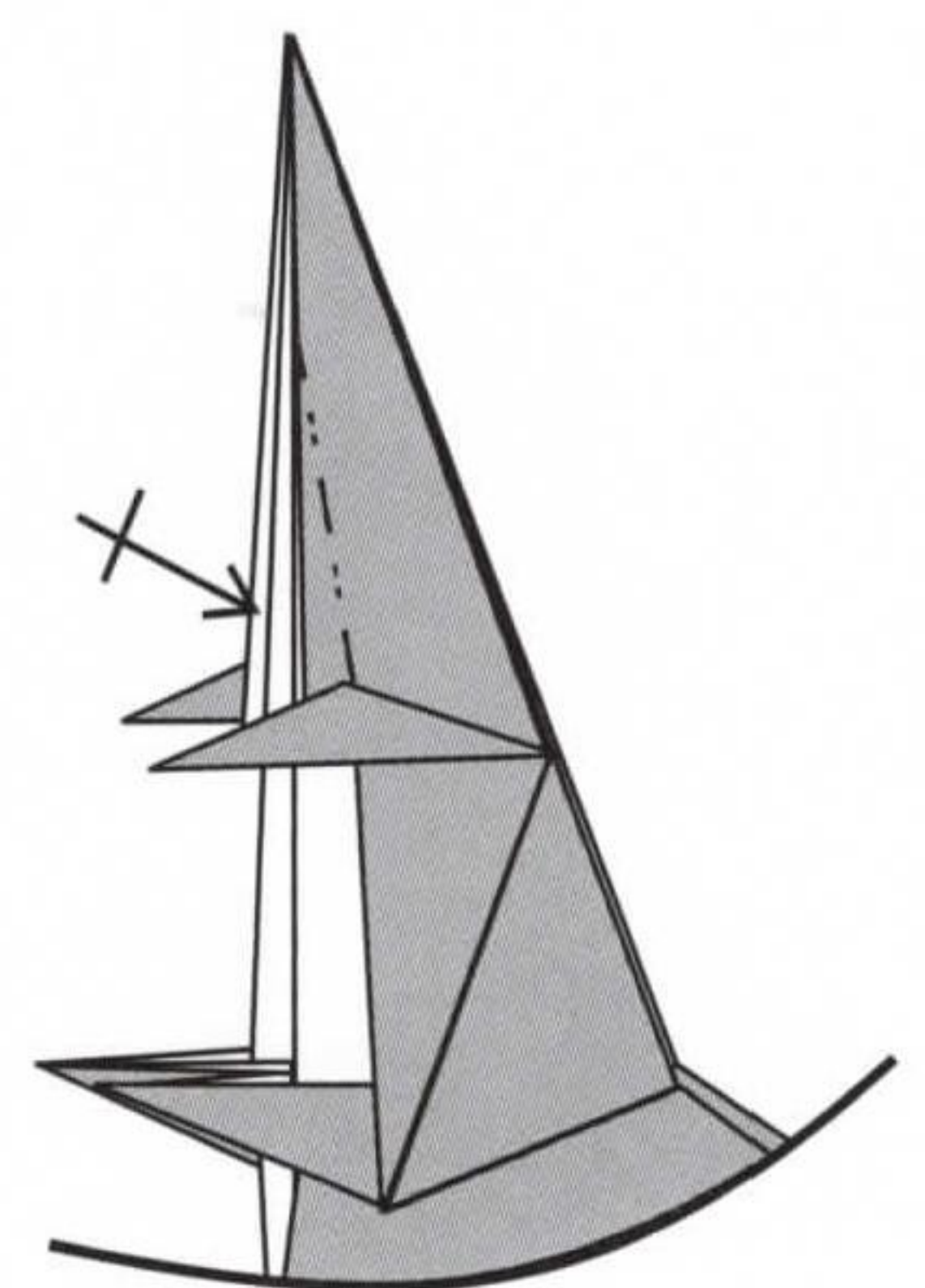
14. Detail of upper arm (foreleg) points.



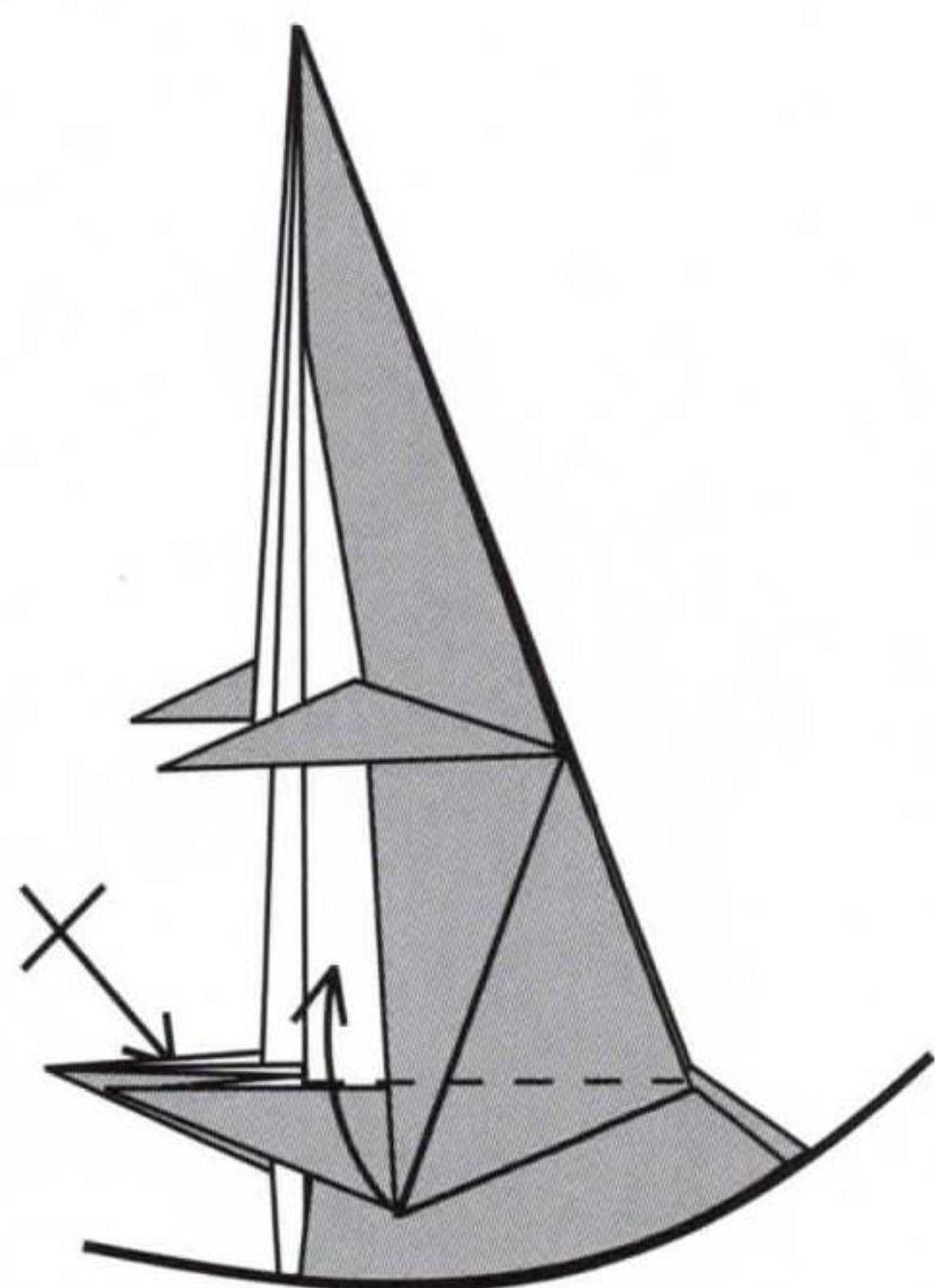
15. Fold the point in half and flatten to the left. Repeat on the other side.



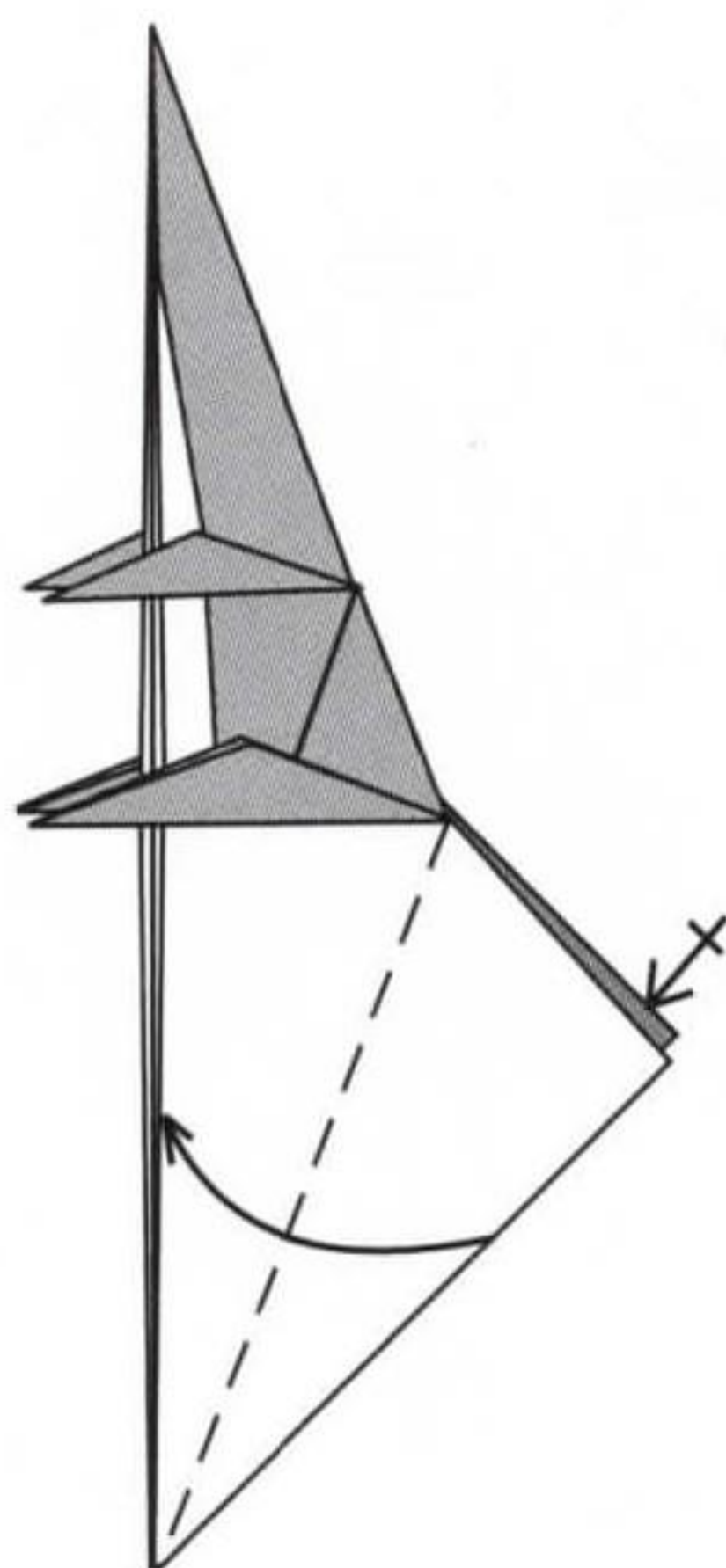
16. Detail of finished rabbit ear.



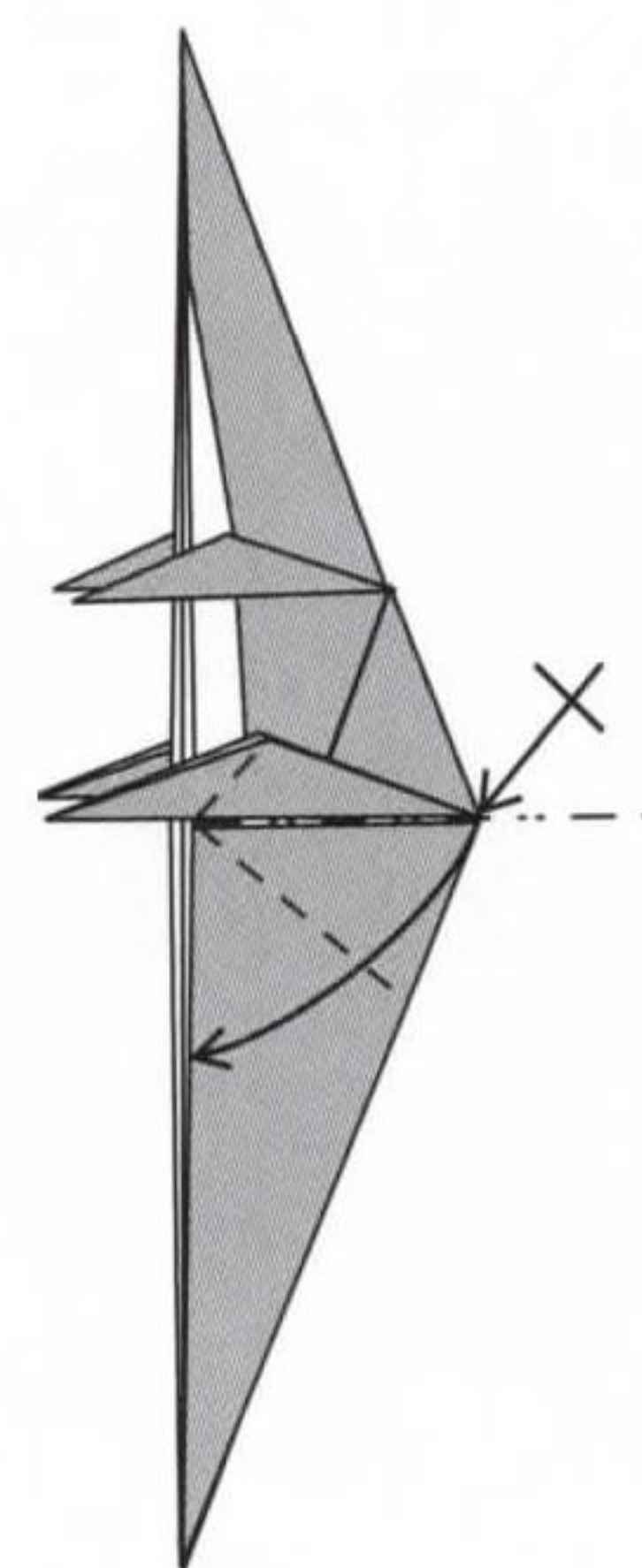
17. Fold in the indicated gray edge, exposing more white for the top of the chest. Repeat on the other side.



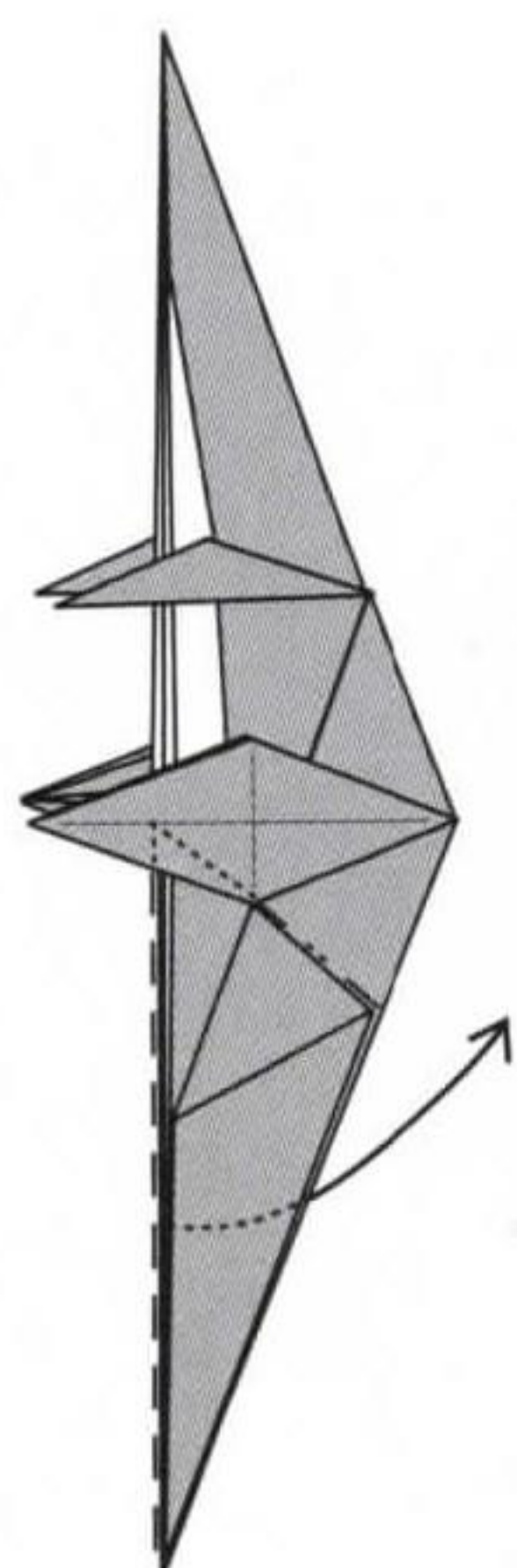
18. Fold up. Repeat on the other side.



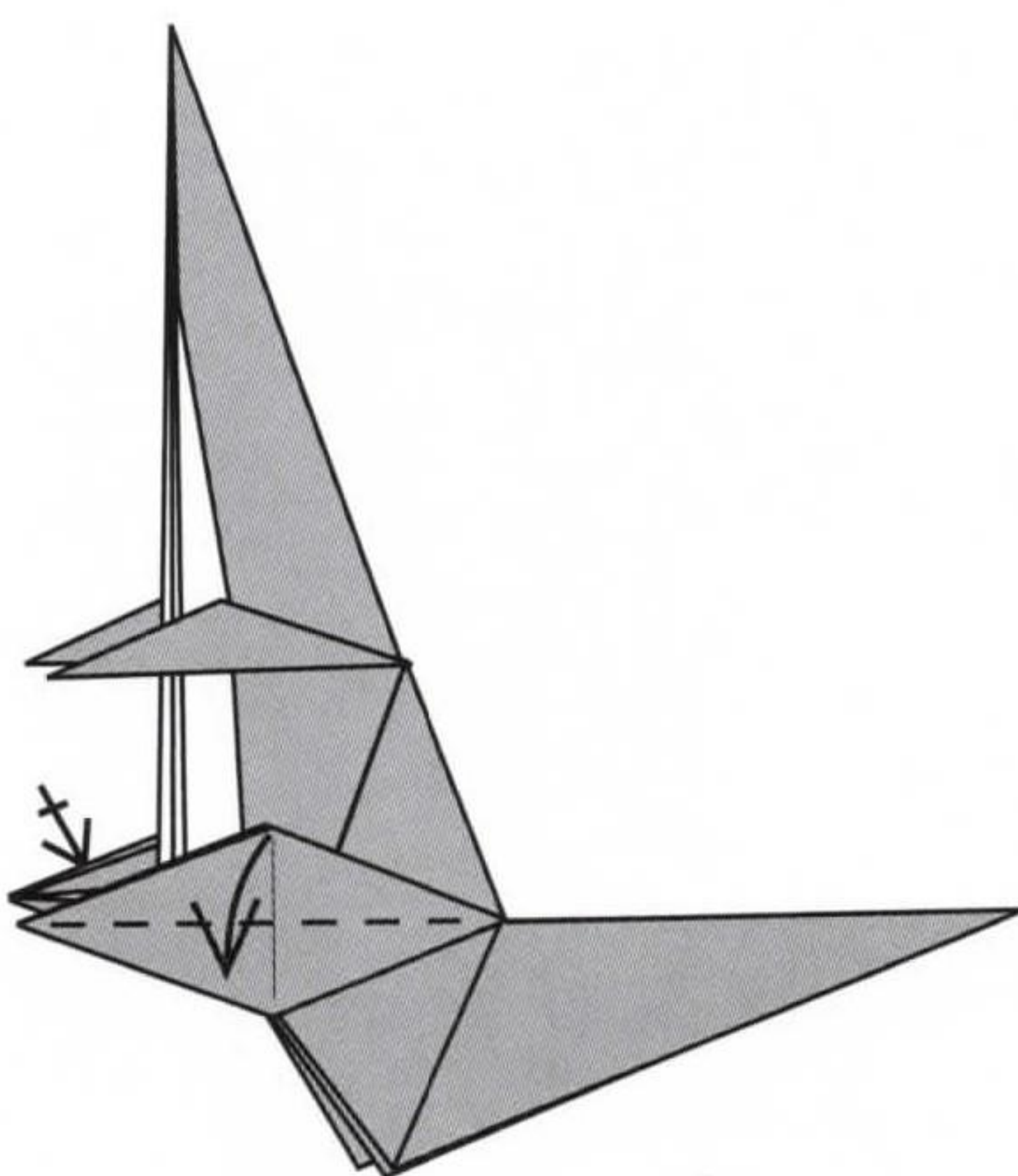
19. Fold in, edge to edge. Repeat on the other side.



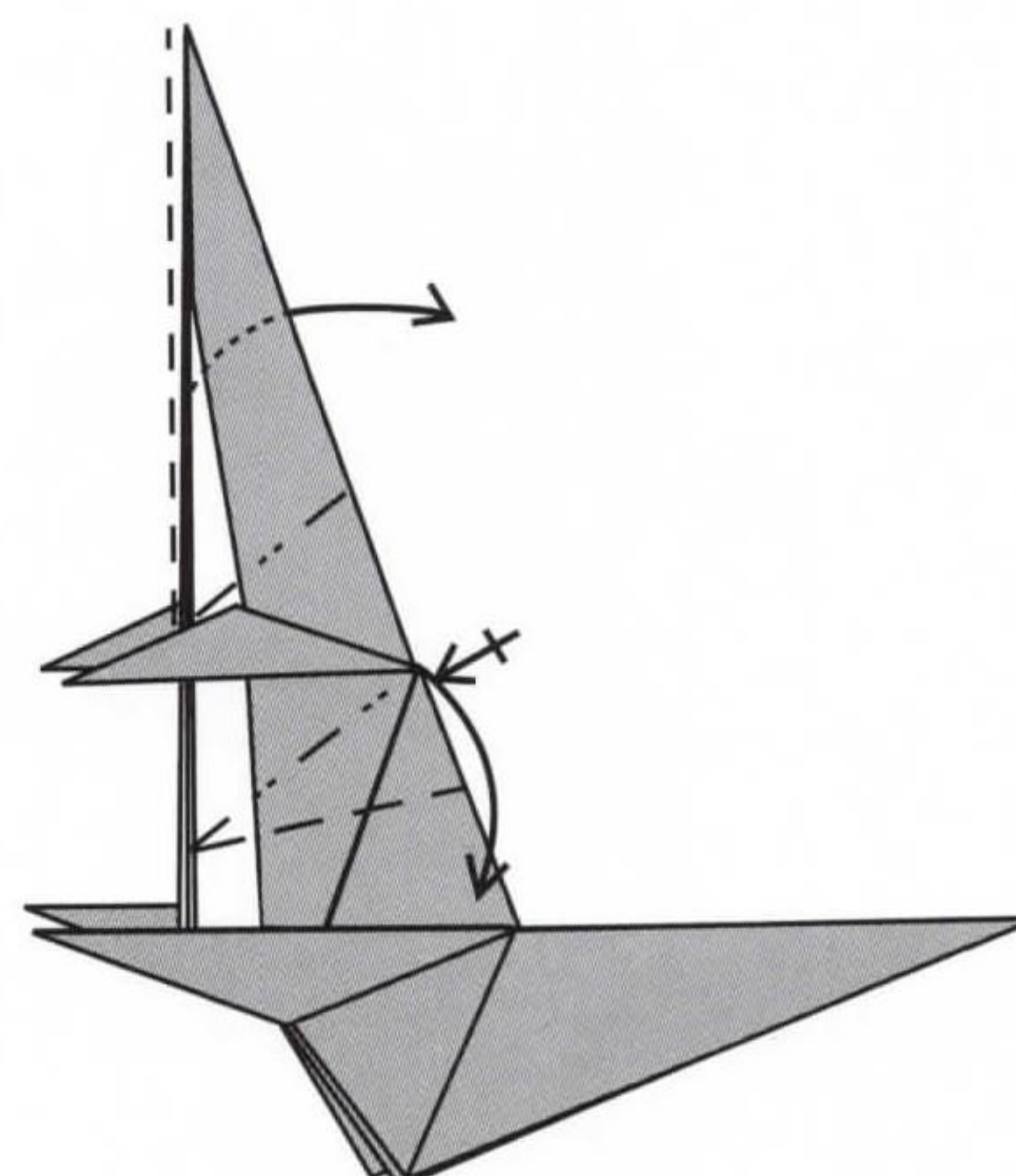
20. Inside-reverse-fold the free corner down. Repeat on the other side.



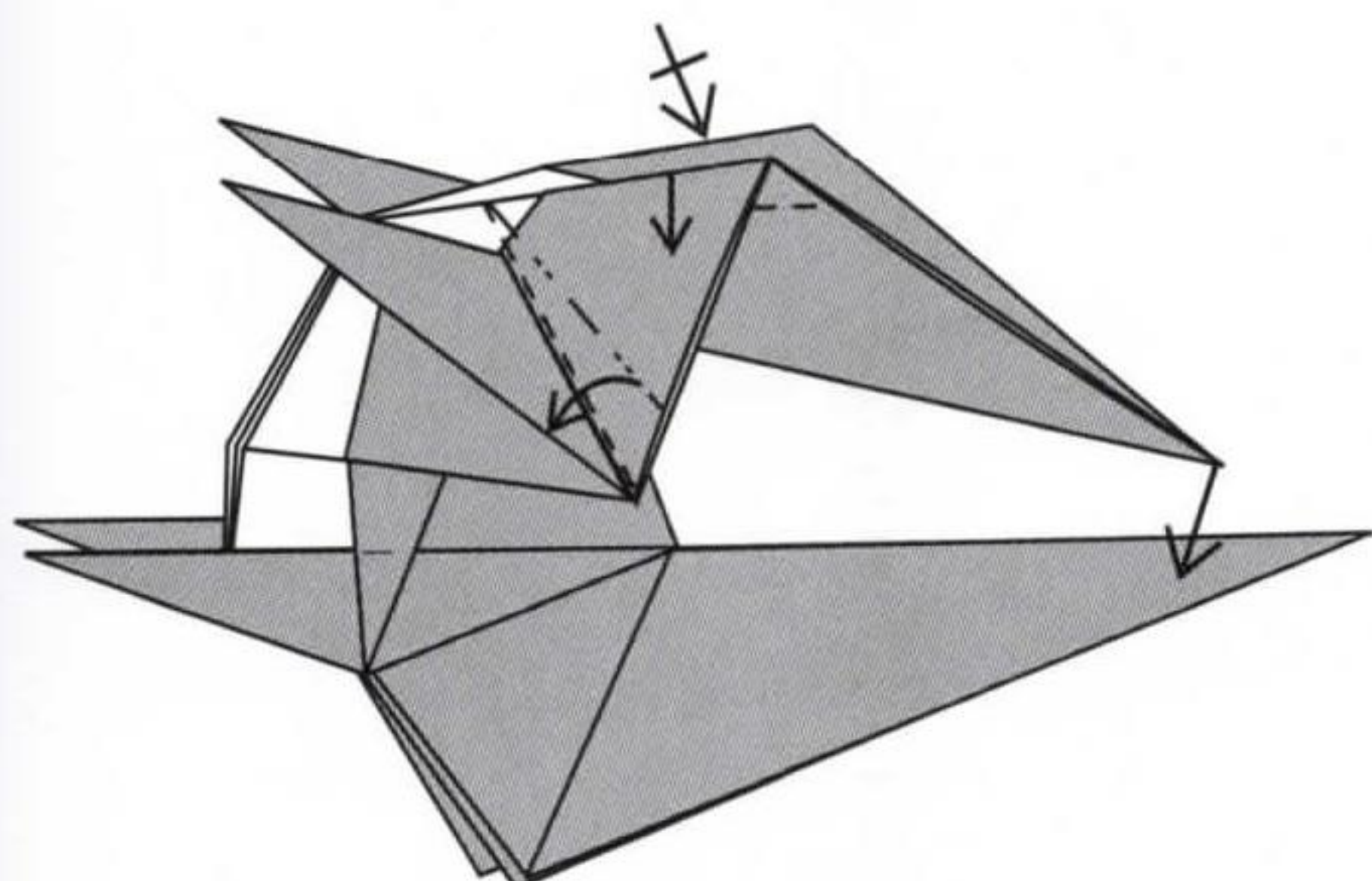
21. Inside-reverse-fold the large section of the tail paper up.



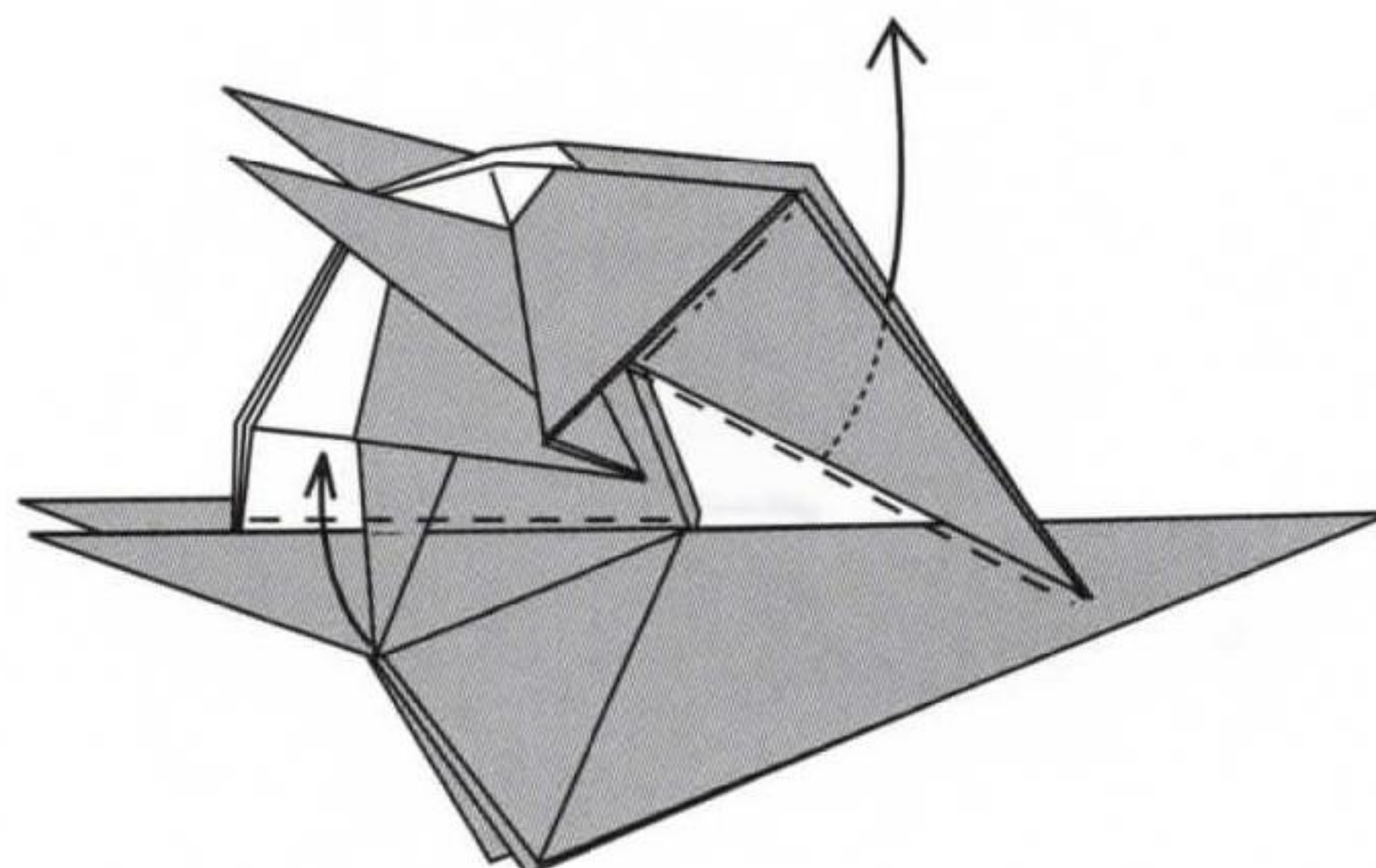
22. Fold the diamond in half, top corner to bottom.



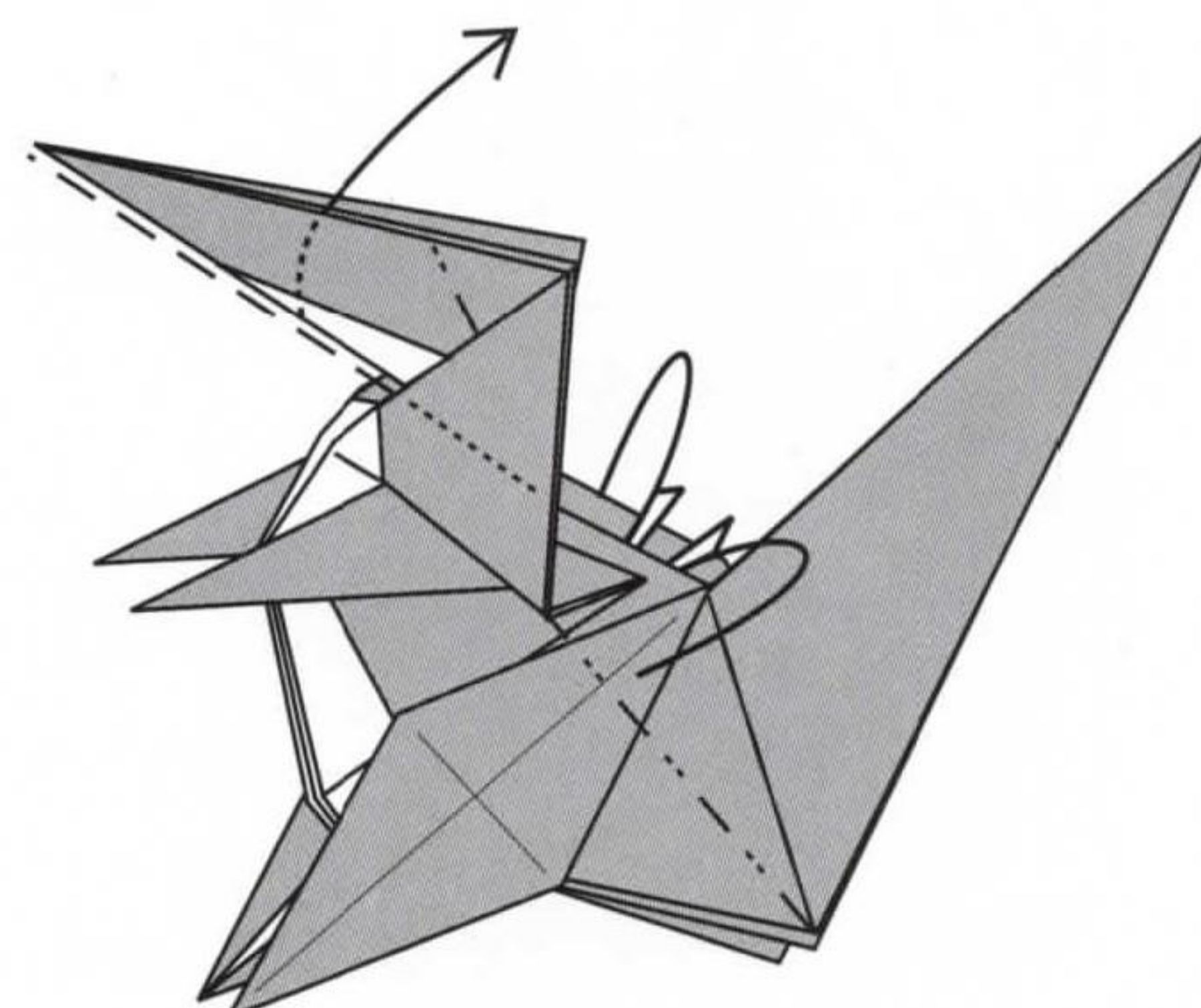
23. Begin a crimp at the belly, bringing the top of the shoulders near the top of the hips. Inside-reverse-fold the neck at the separation line above the front legs.



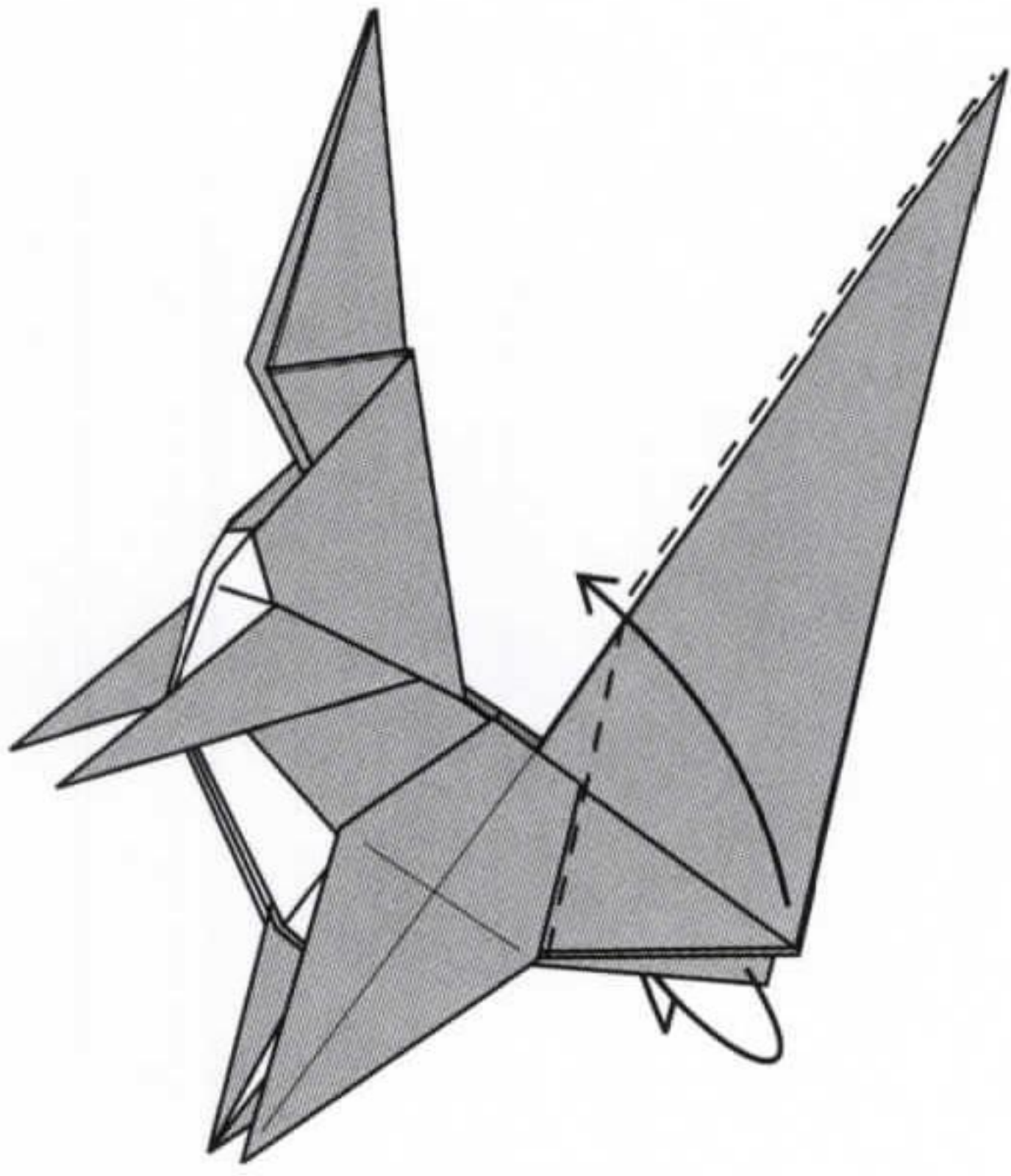
24. Mountain- and valley-fold just above the shoulders, swiveling the paper of the neck to narrow it.



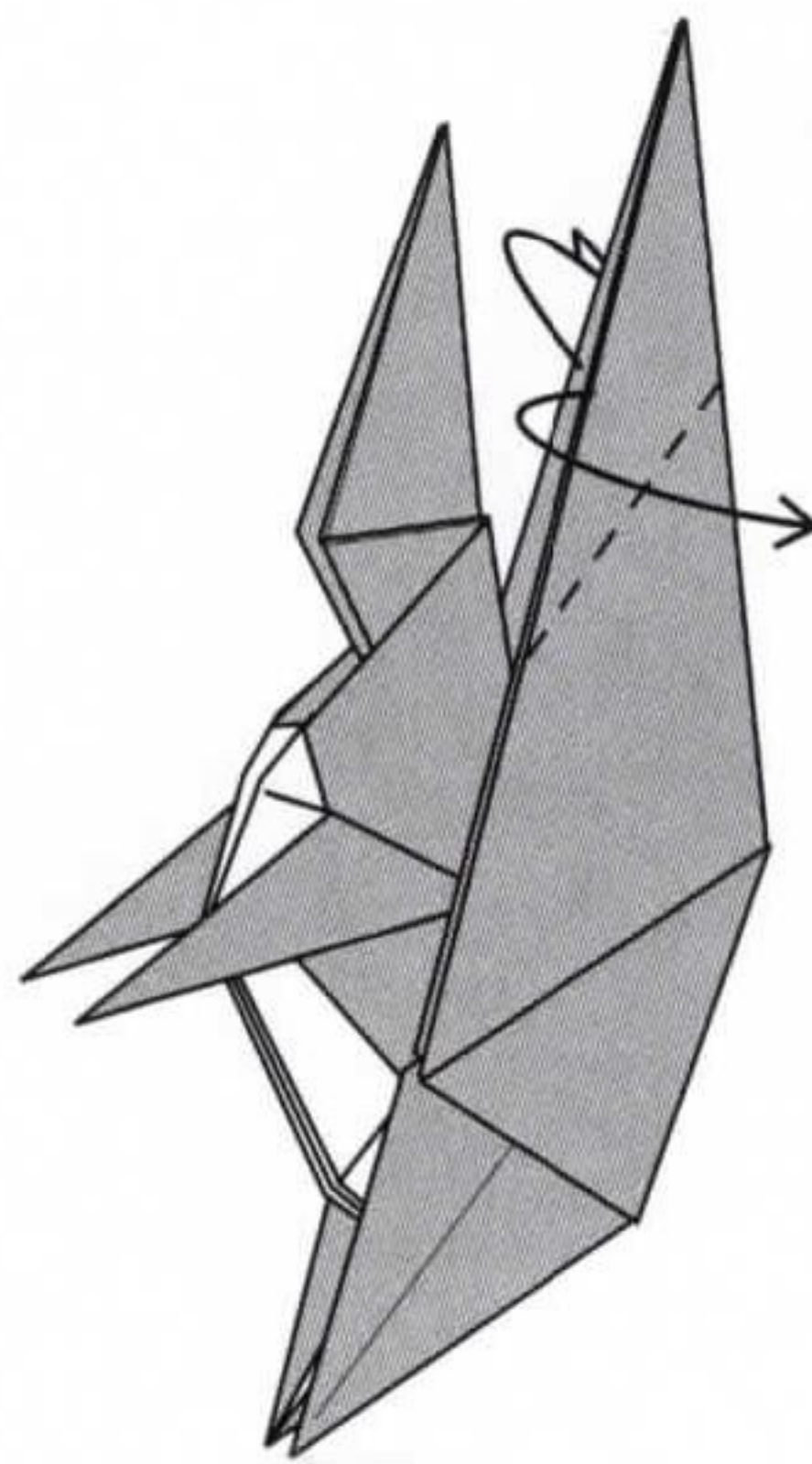
25. Inside-reverse-fold the head back through the neck area. Fold the hind leg halves up to open the diamond shapes once again.



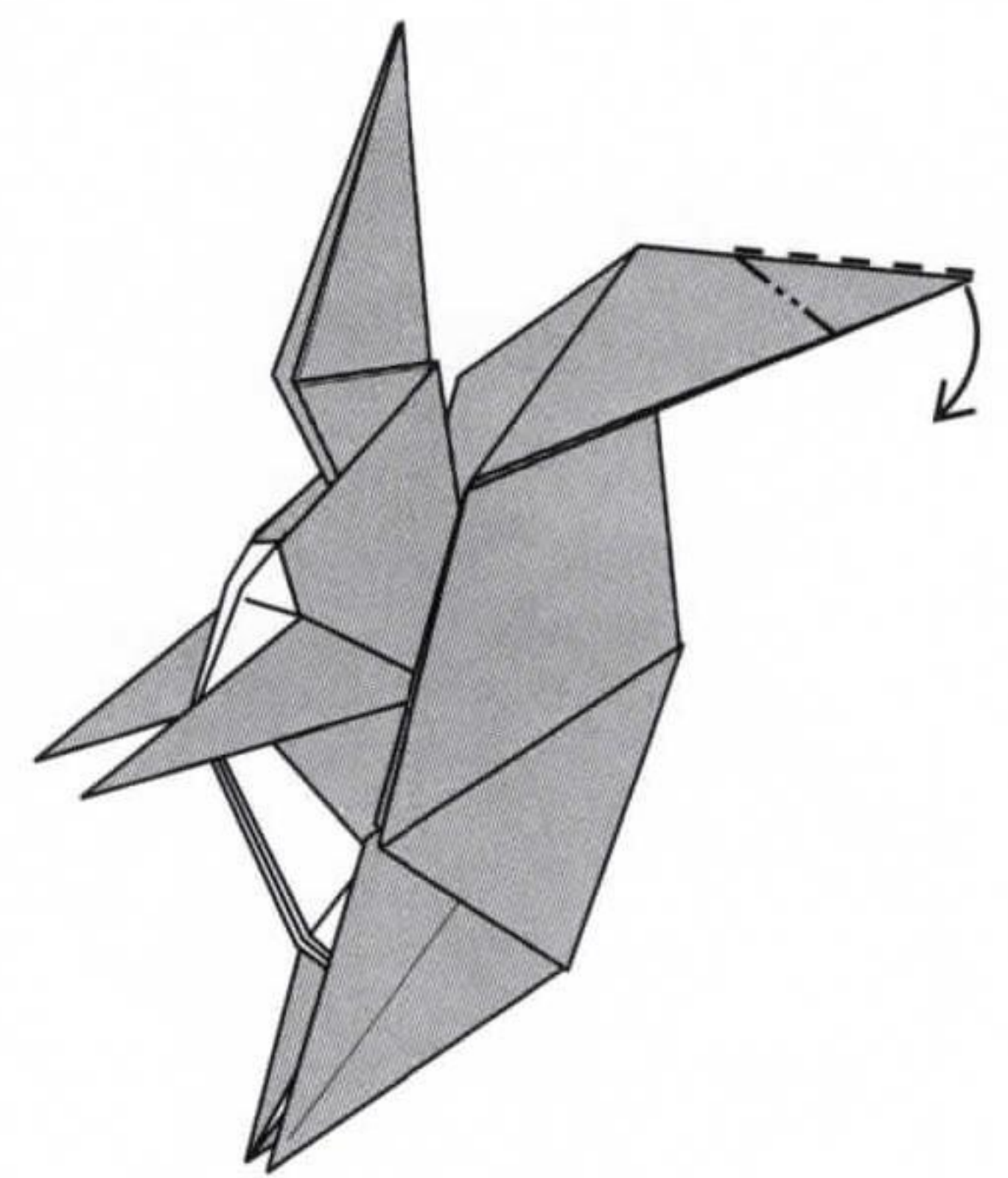
26. Inside-reverse-fold the top point up. Mountain-fold the excess paper inward, along a line from the top of the shoulders, along the top of the hips, to the base of the tail.



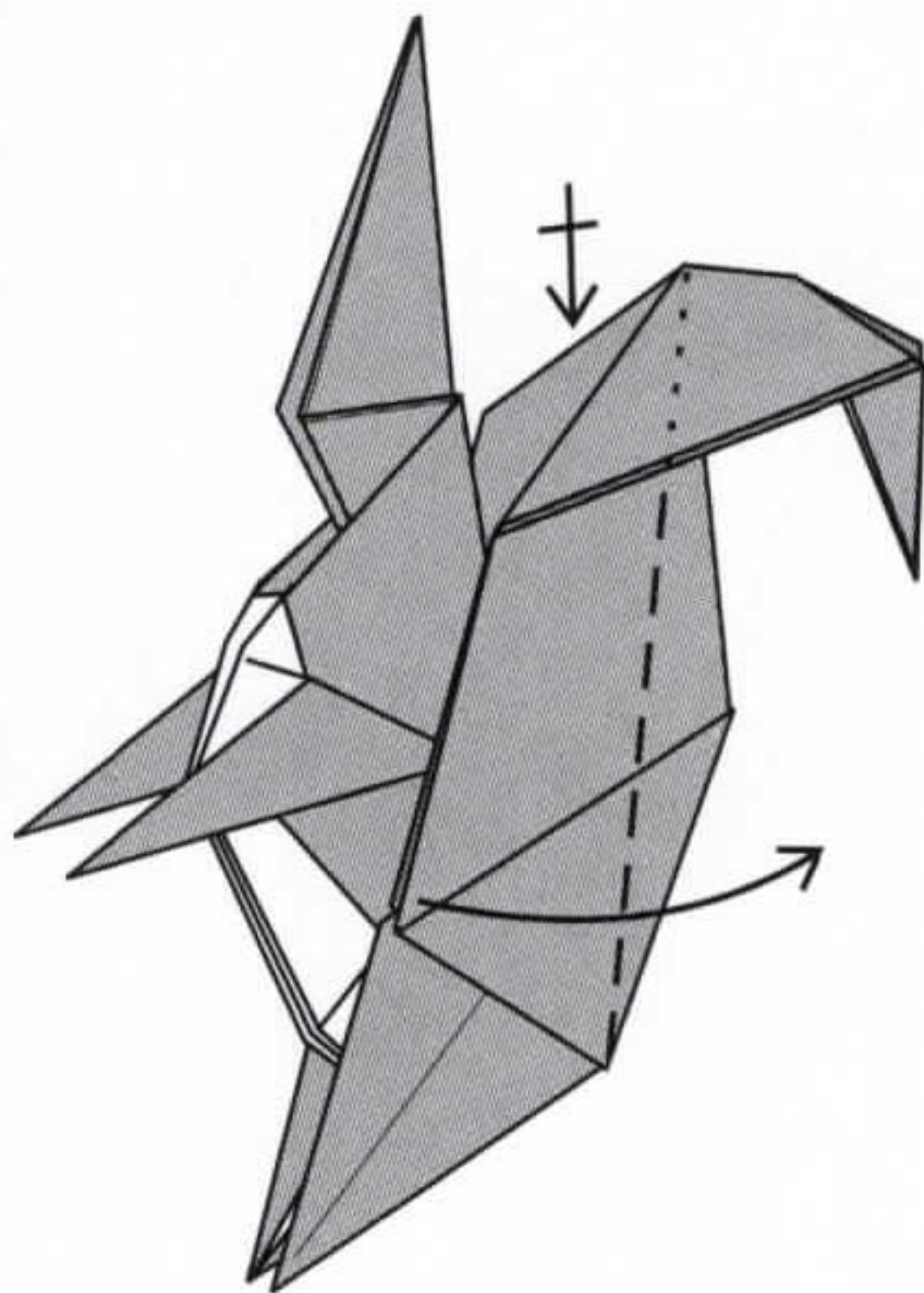
27. Outside-reverse-fold the tail.



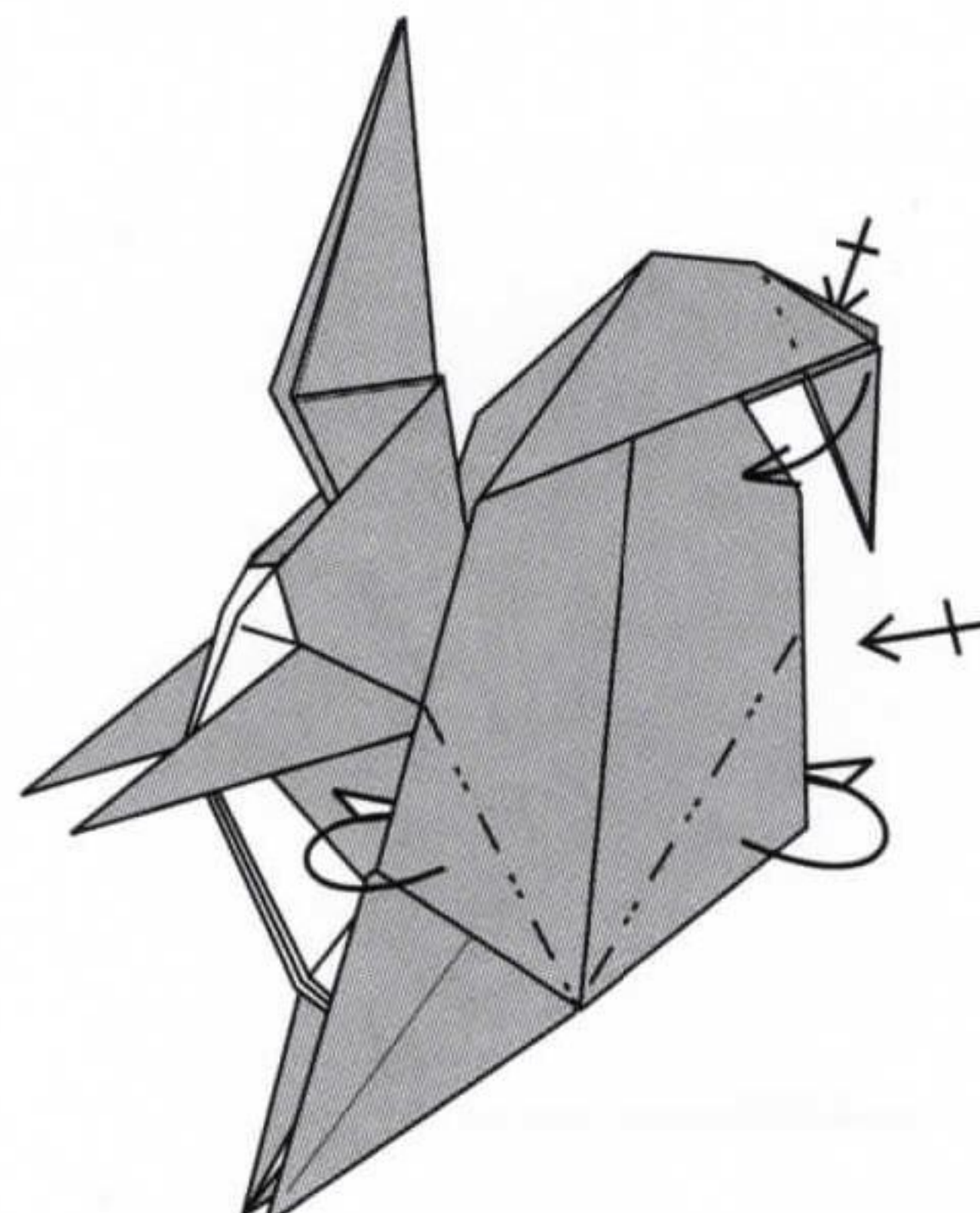
28. Outside-reverse-fold the top of the tail.



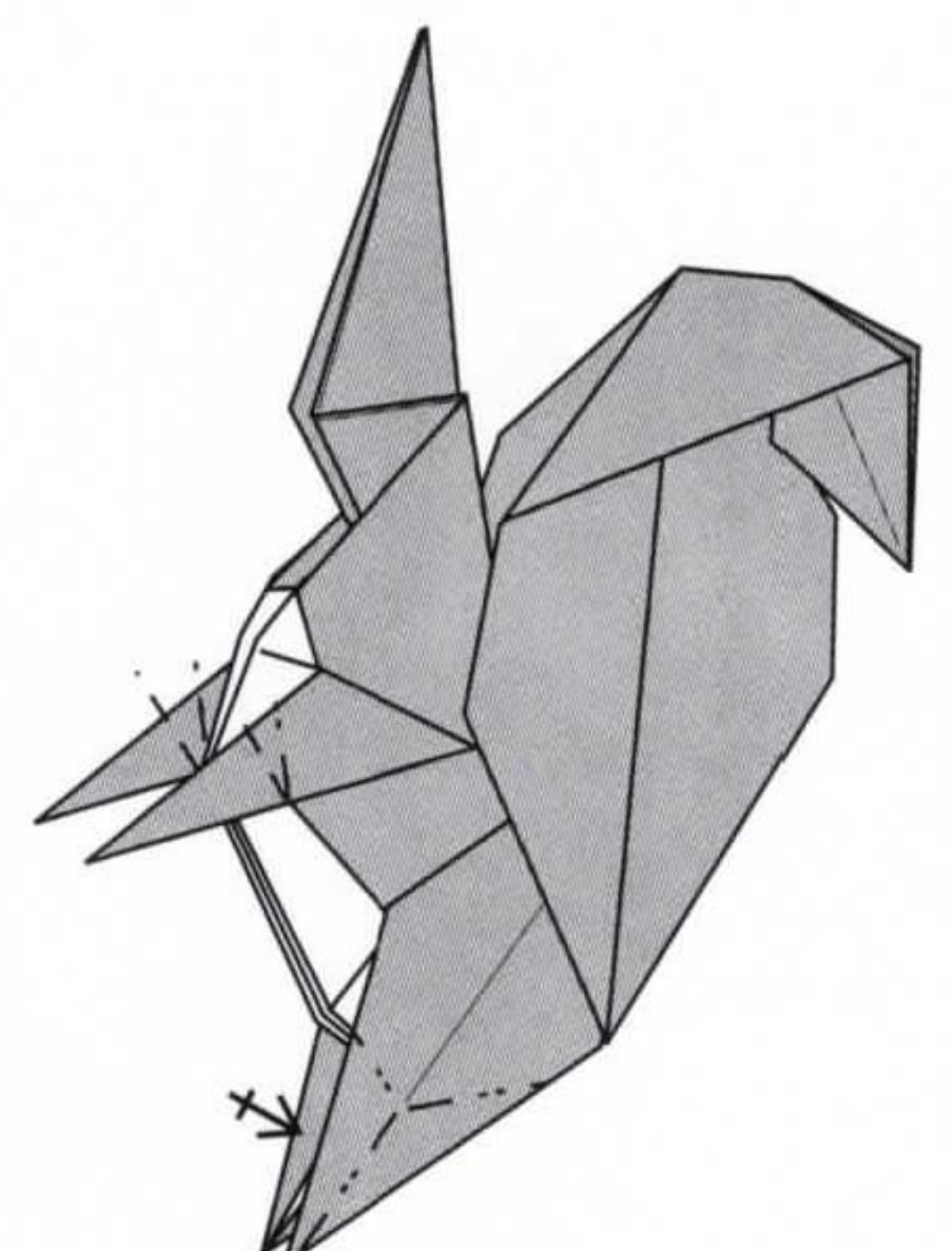
29. Inside-reverse-fold the tip of the tail.



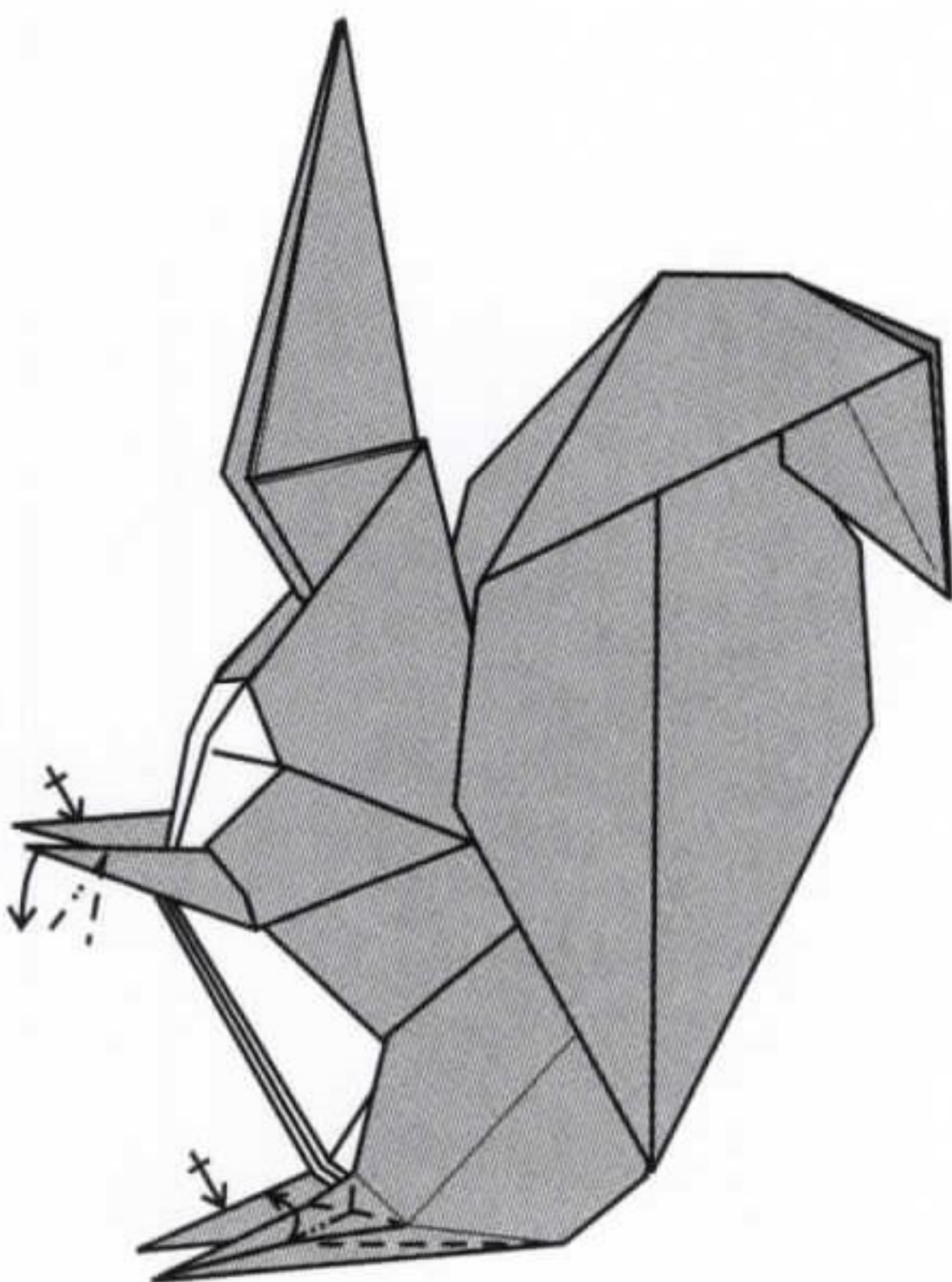
30. Bring back the outer layers at the base of the tail to make it wide.



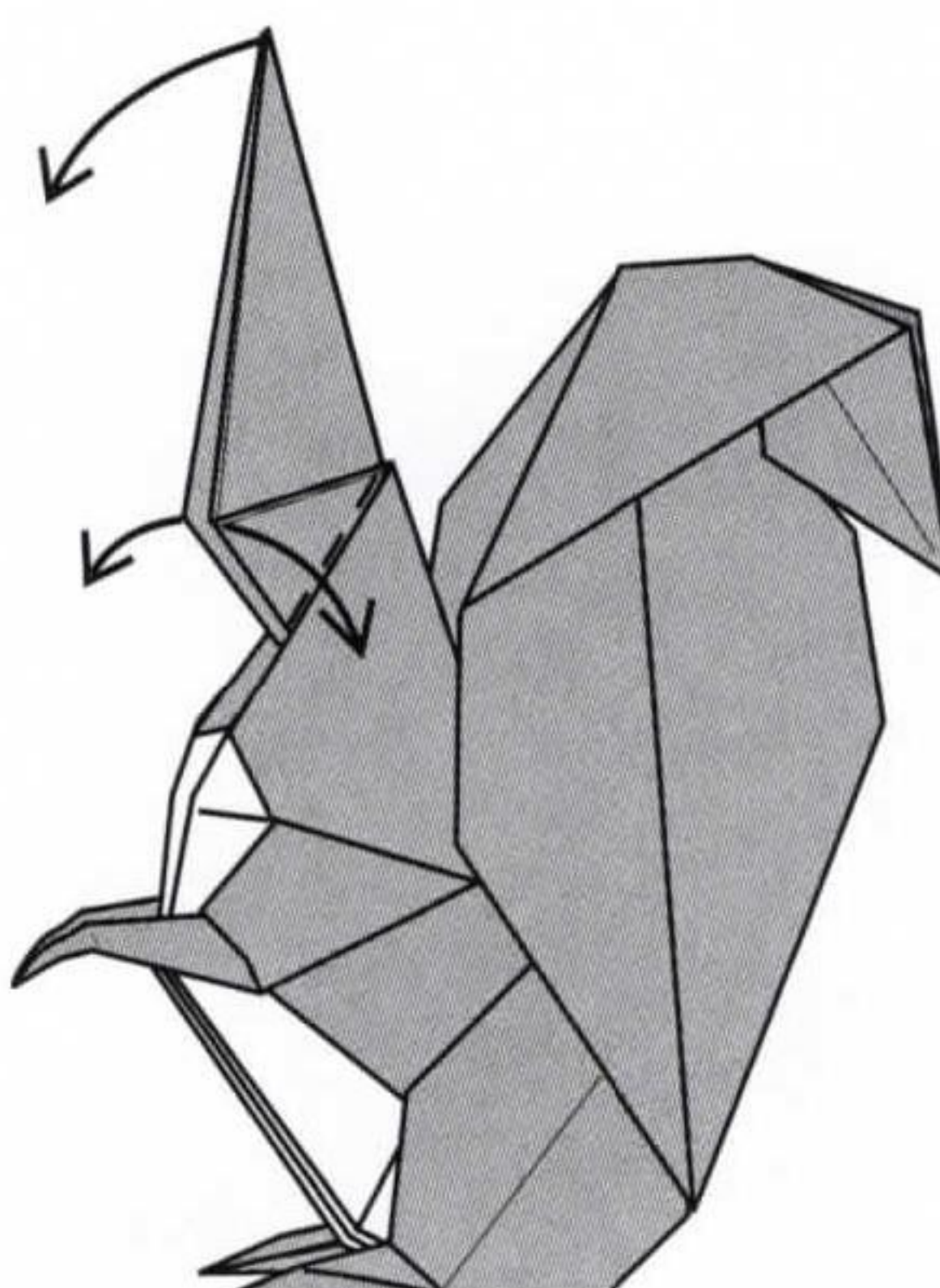
31. Narrow the base of the tail with a pair of mountain folds on each side. Open the layer of paper under the tip of the tail.



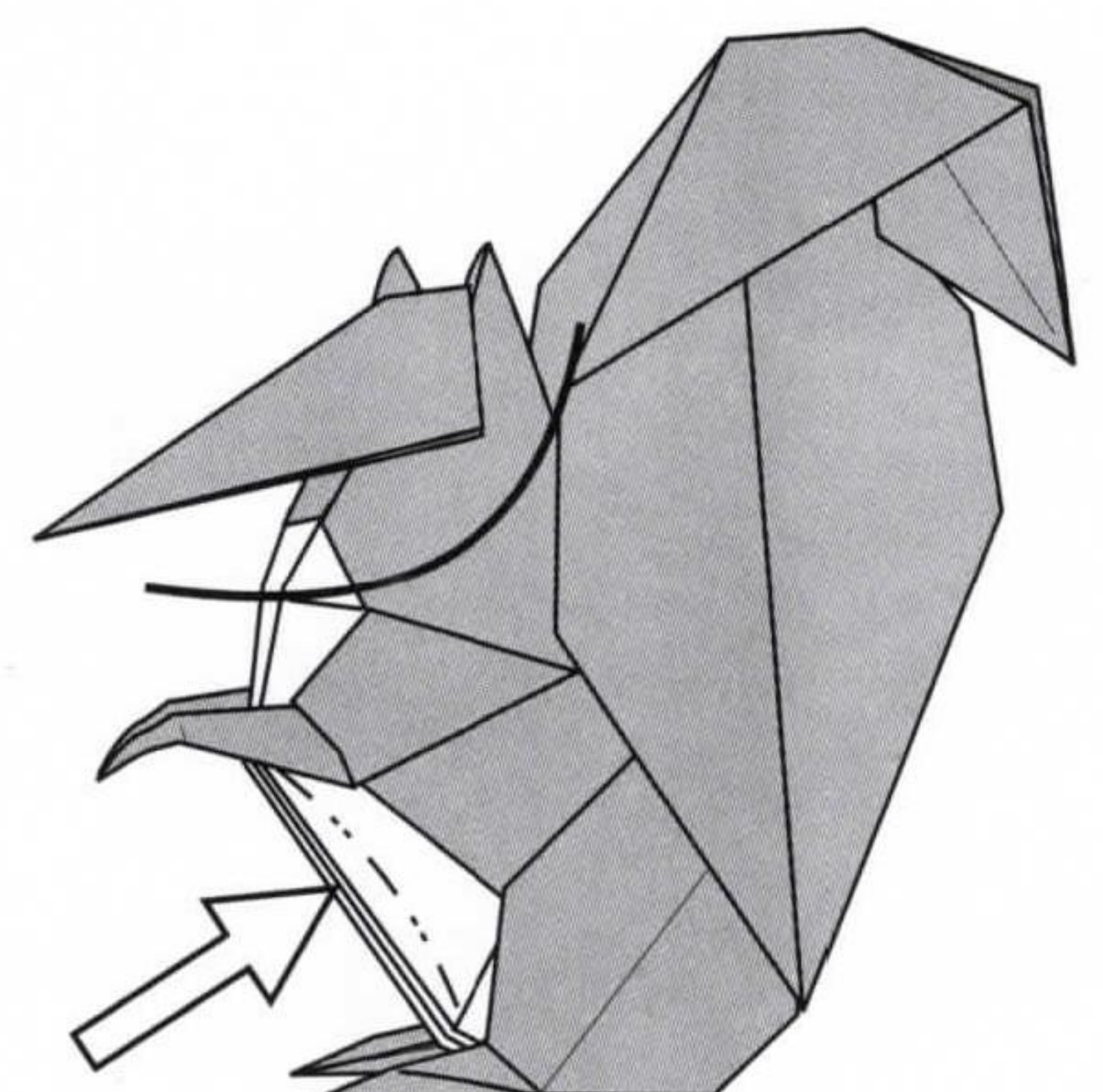
32. Crimp the elbows of the forelegs. Form feet from the ends of the lower legs with three intersecting mountain folds.



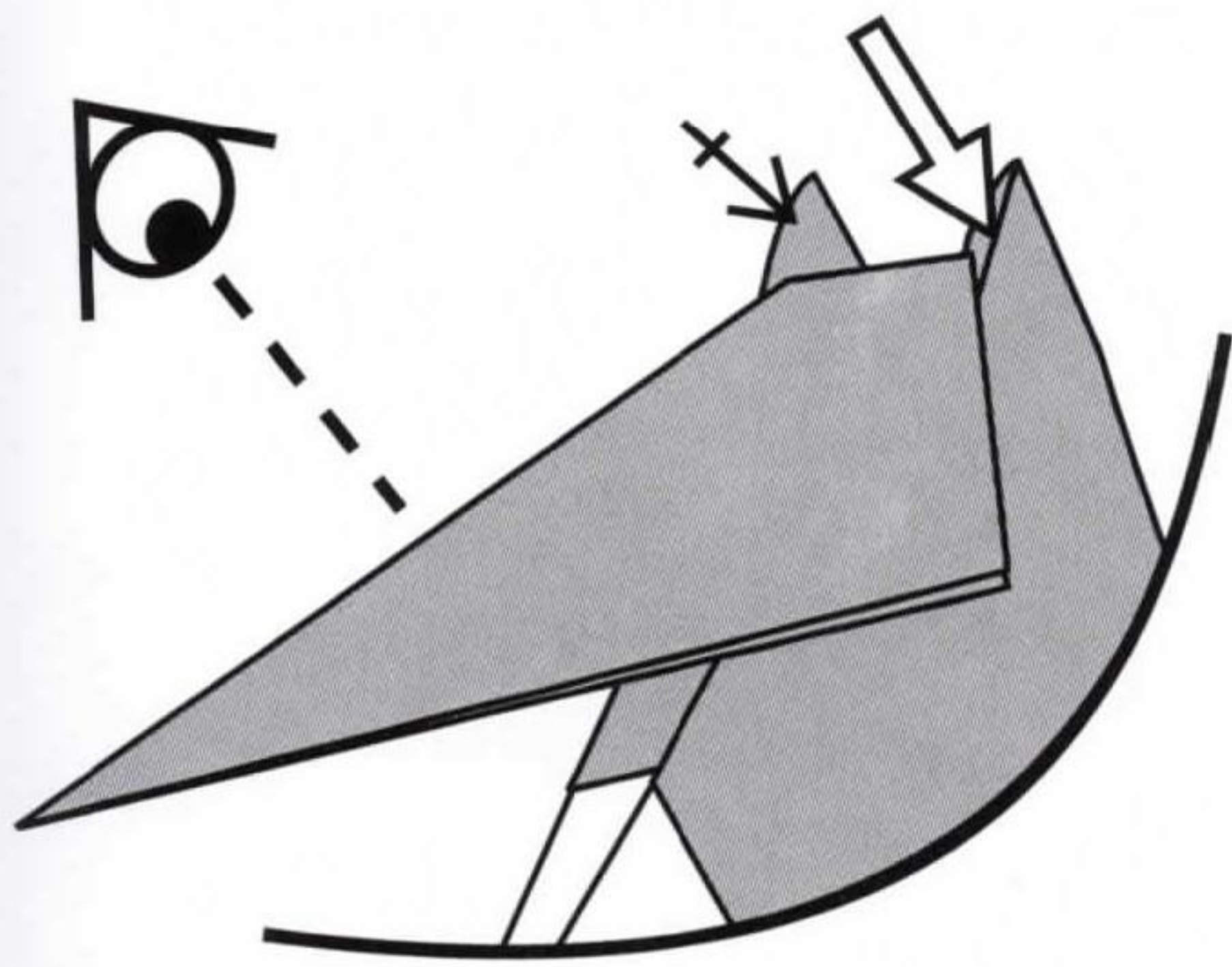
33. Form paws by crimping each forearm point. Adjust the stance with valley folds along the base of each foot.



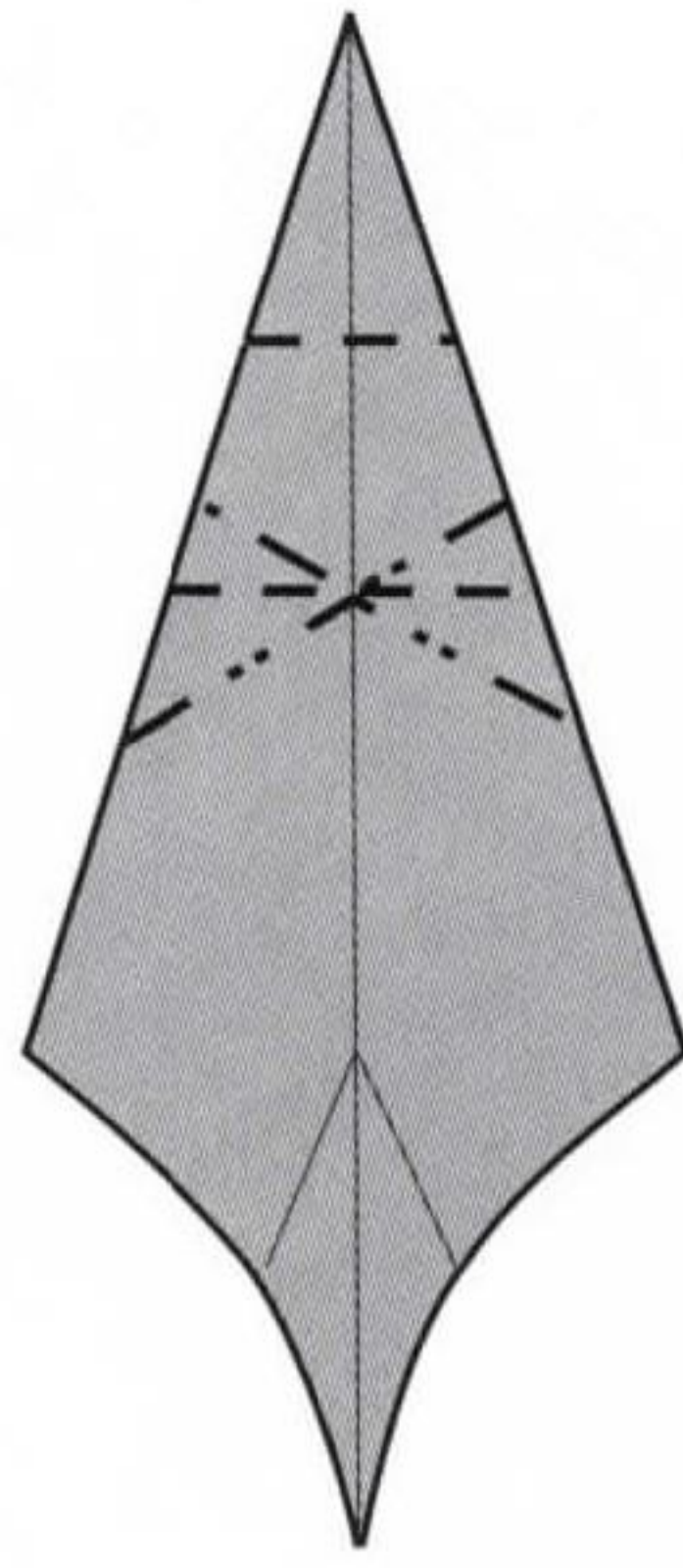
34. Divide the remaining head point with another inside-reverse-fold to form the corners of the ears. Crimp to bring the cheeks outside of the neck. Inside-reverse-fold again to make the top of the head. Bring the point back down to form the forehead and face.



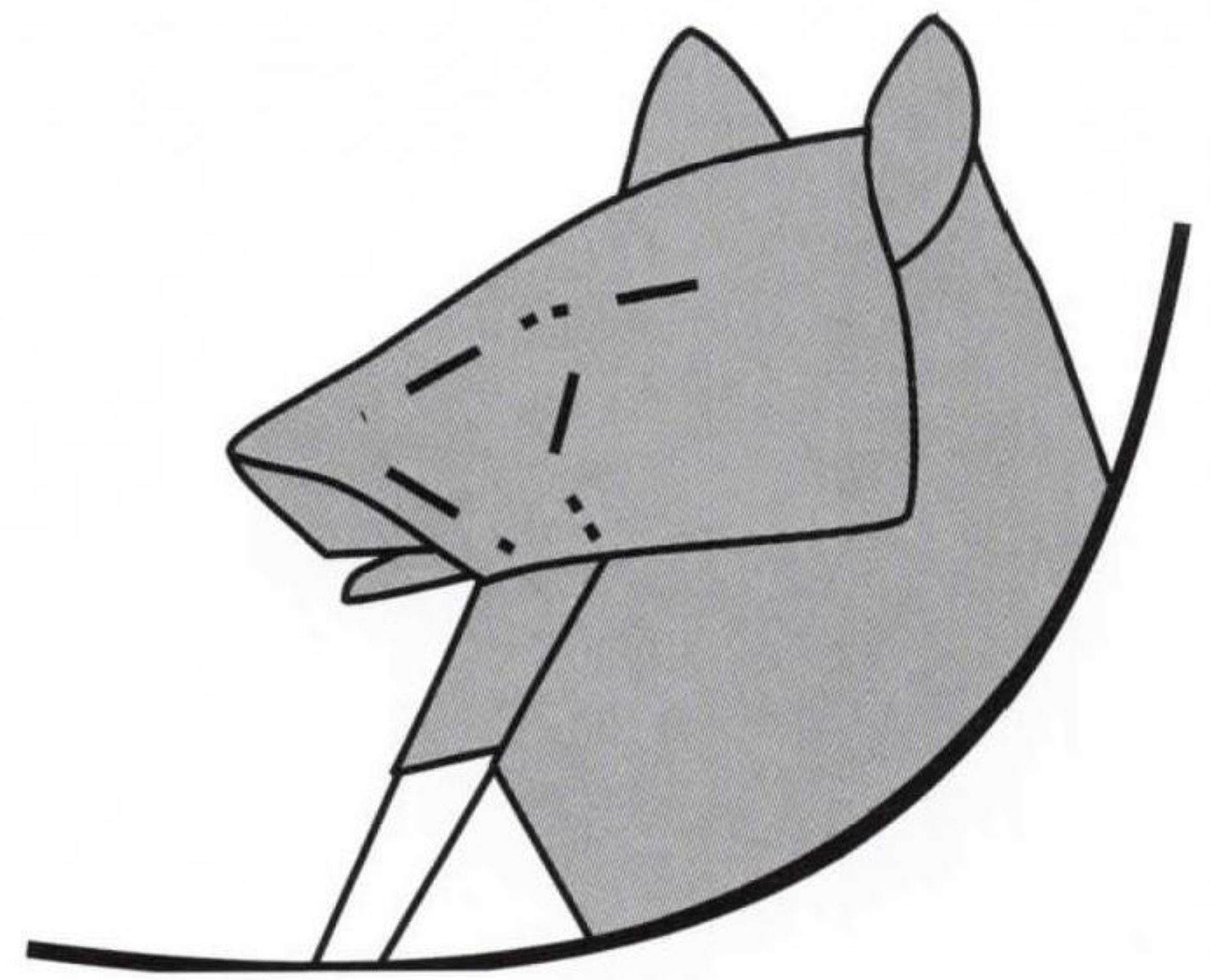
35. Round out the body. Reach inside the chest to push out the paper on either side of the valley fold. This will round the chest from the inside. Some of the paper may be pressed to one side or another to form a flatter looking chest.



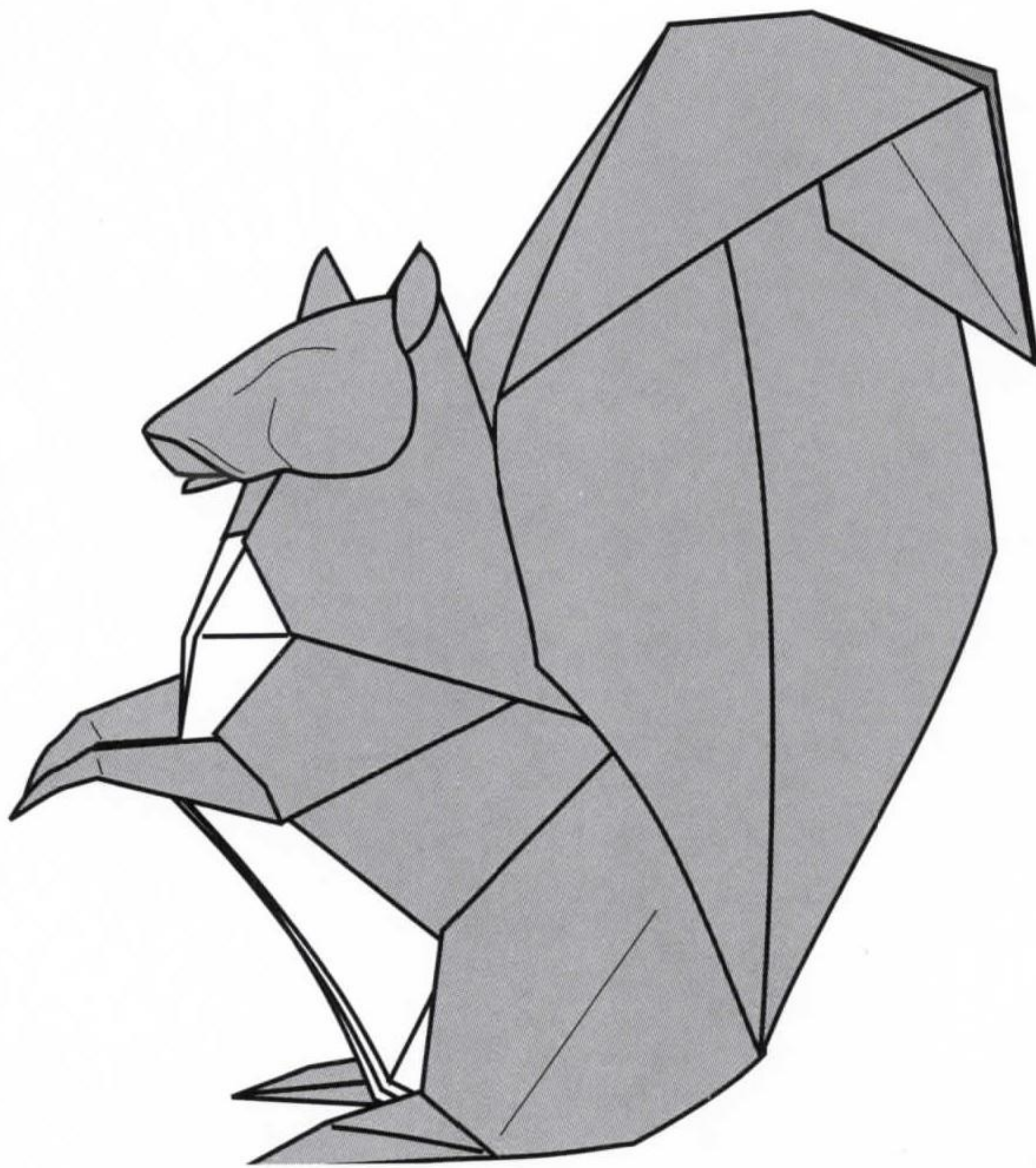
36. Open the ears.



37. View of head from above. Mountain- and valley-fold forward of the center to form the nose. Valley-fold the point to the tip of the nose.



38. Finish the head by bringing the triangular point forward of and between the ear points. Crimp to suggest eyes. Bring the point back out. Insert a pair of mountain folds, spreading them apart to form the upper parts of the nostrils. Squash the remaining triangular point to form the lower section of the nostrils. The point becomes the squirrel's lip.



39. The finished Squirrel.

ADDITIONAL HINTS FOR ADDED DETAIL

- 👑 Continue to re-wet and shape any of the major areas. Working on one area should allow the other areas to dry and firm up gradually. Check the edges and round out any areas of the tail profile to soften the appearance of the animal. The back of the tail and body may be formed and secured in a closed position.
- 👑 Check the angle of the feet so the model balances before it dries completely.
- 👑 Tuck the foot inside the leg at the ankle to adjust the angle of the foot. The model will stand upright.
- 👑 Pull the legs apart and reach inside the model to round out the body.
- 👑 Separate the chest and abdomen with an indentation as you puff out the chest.
- 👑 I often wrap the model with a piece of cloth while it dries in the correct posture. The cloth helps to stabilize the shape while it dries, otherwise it may drop open or sag out of form. You may want to stuff some paper towel or cotton behind particularly wet areas to keep them plump while they dry.

toco toucan

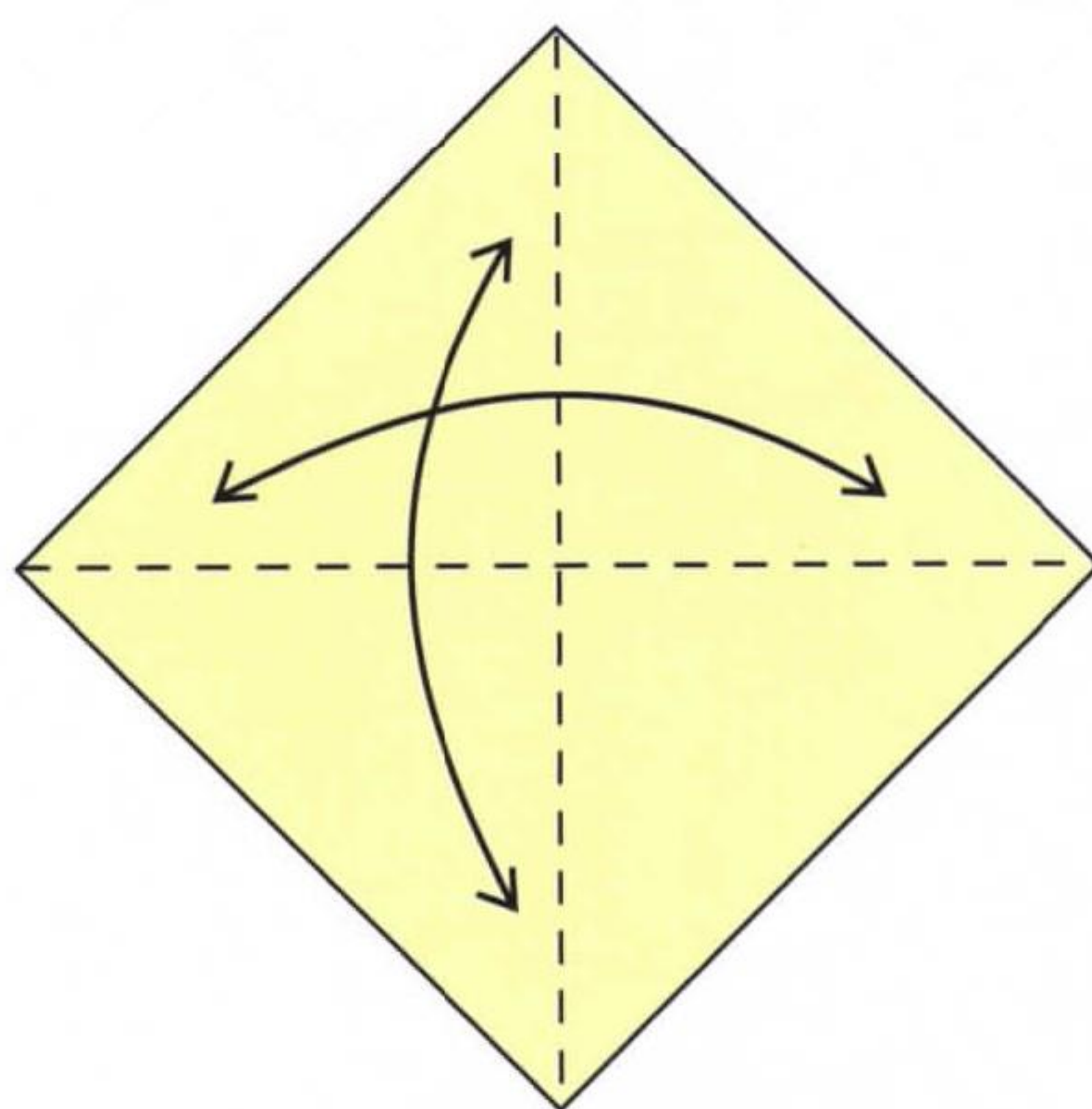
Designed by Michael G. LaFosse



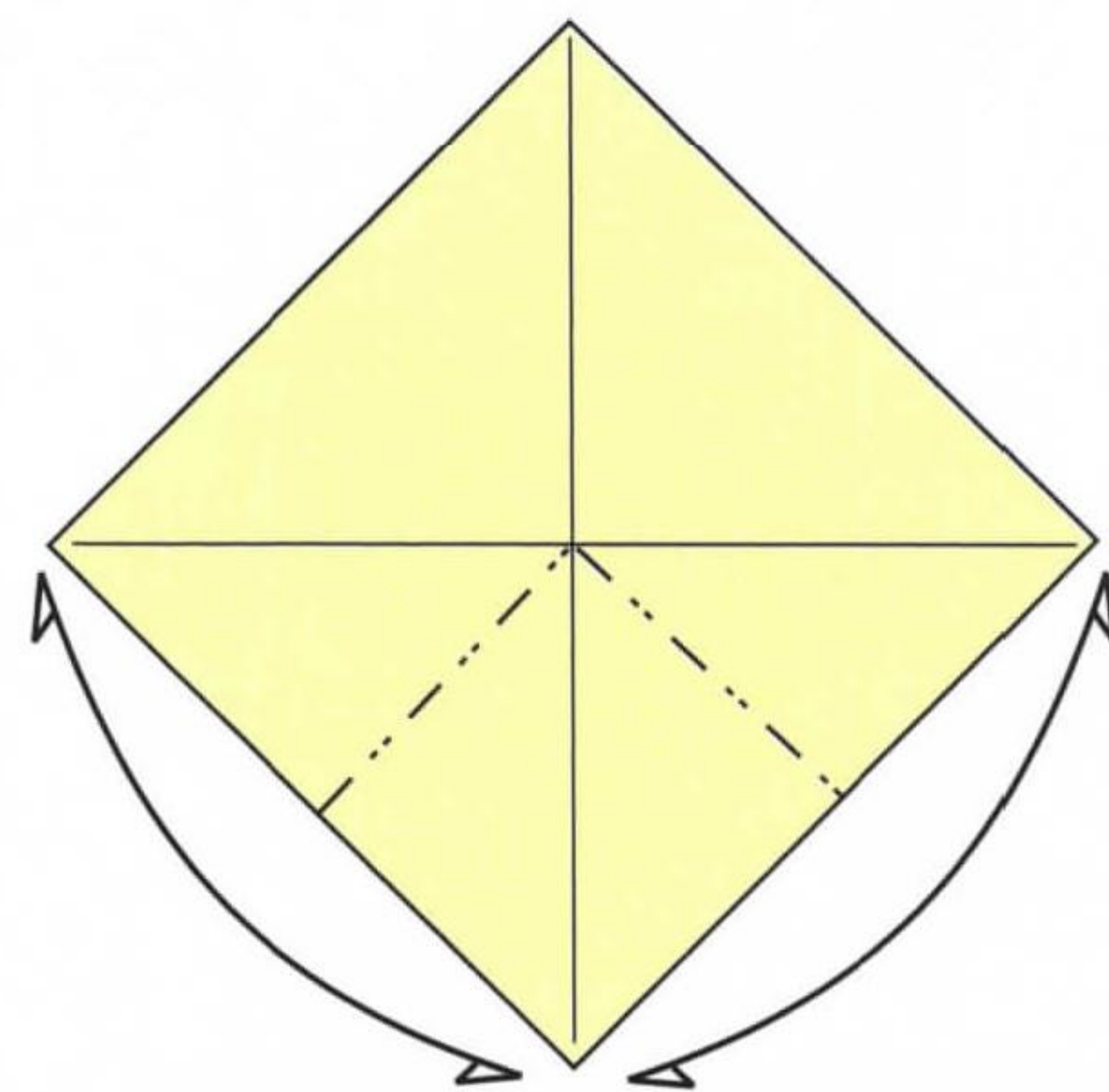
In 1991, a toucan resided in a pet shop near my home. I would frequently visit this bird during its month-long stay. Thus inspired, I designed this origami Toco Toucan model during that year.

PAPER SUGGESTIONS

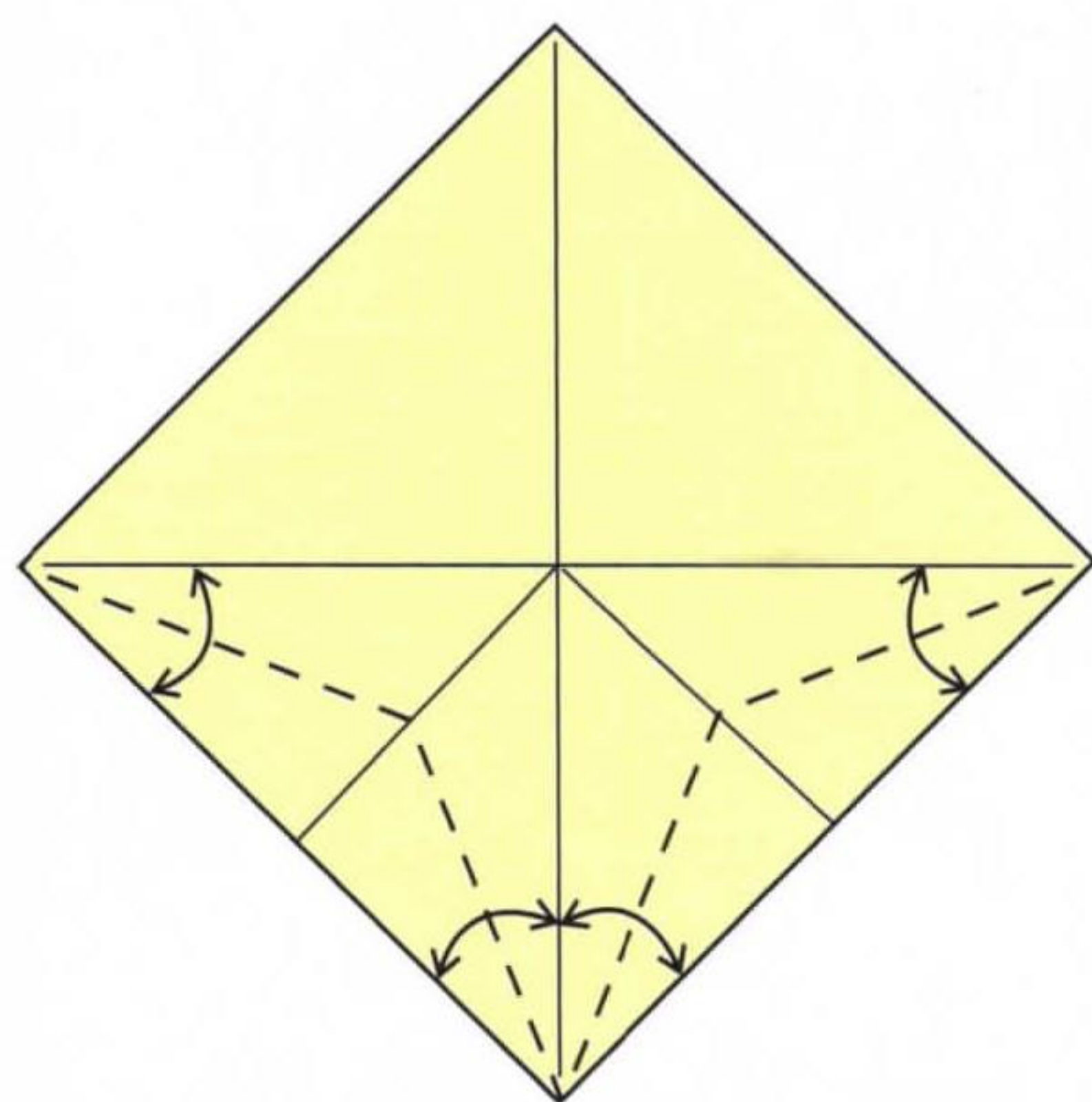
This is a good example of “inside-out” origami, a model that displays both sides of a two-colored sheet of paper (duo paper), yellow on one side and black on the other. Paper choice for this model is critical! Compressible Asian papers are best, such as washi. Paste two sheets together, one black and one yellow. Your final sheet must be large and thin since many layers accumulate in the legs and head. This model can be folded from smaller foil-backed and art tissue papers for practice. Use a piece of paper at least 25 inches (64 cm) square, which will produce a model 10 inches (25 cm) high.



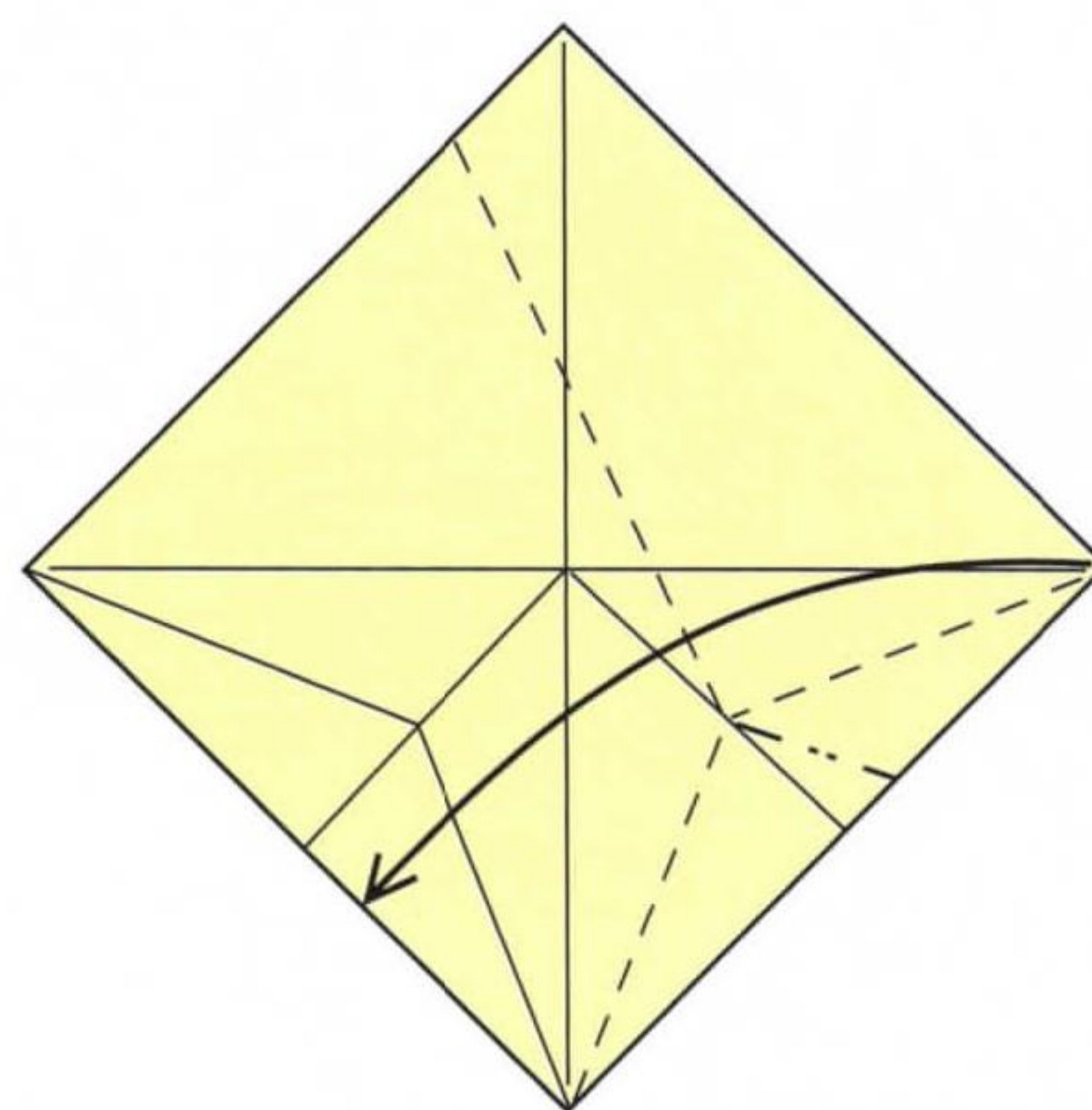
1. Begin with the yellow side up. Fold in half, corner to corner, both ways. Unfold.



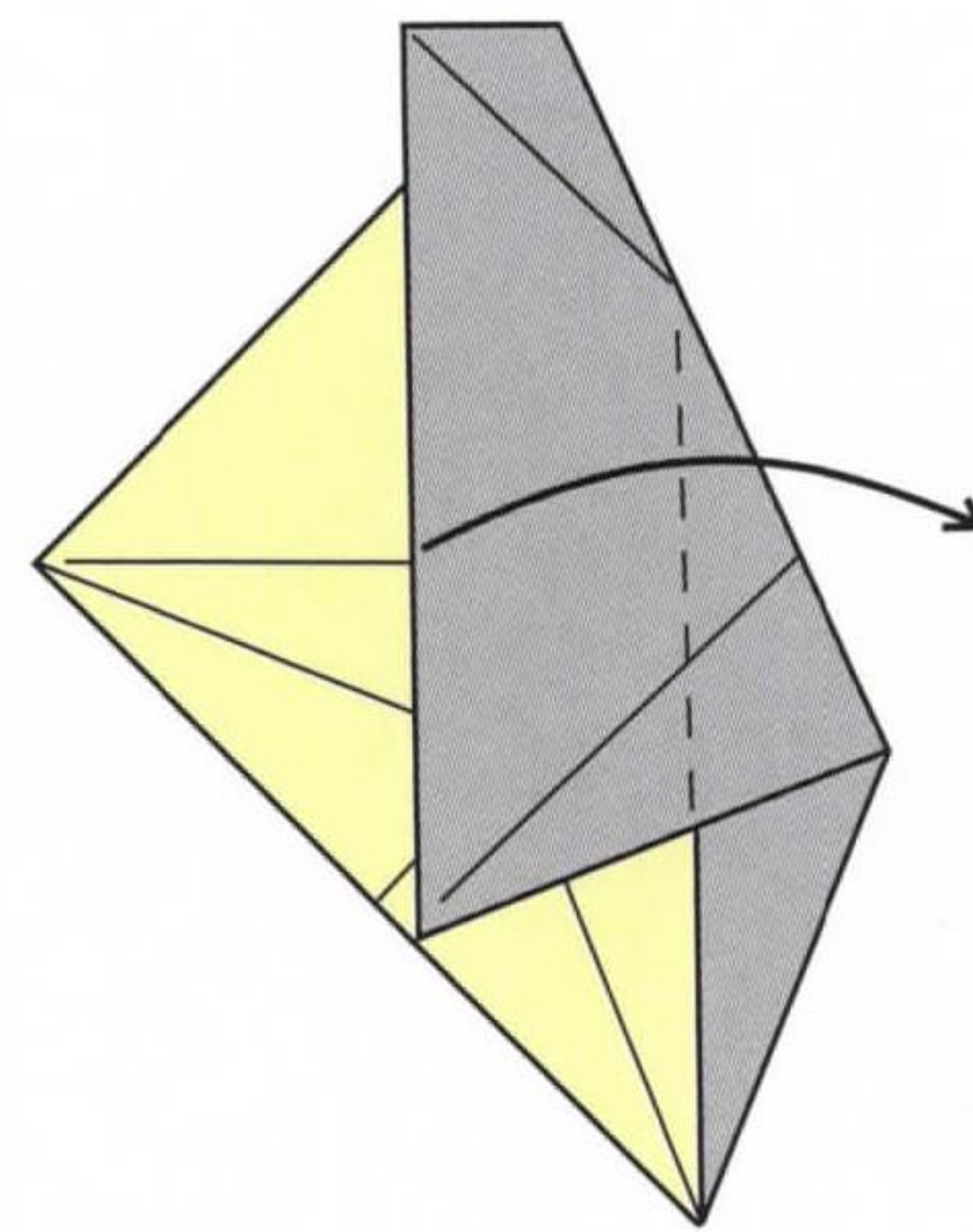
2. Mountain-fold the bottom two edges of the diamond in half. Unfold.



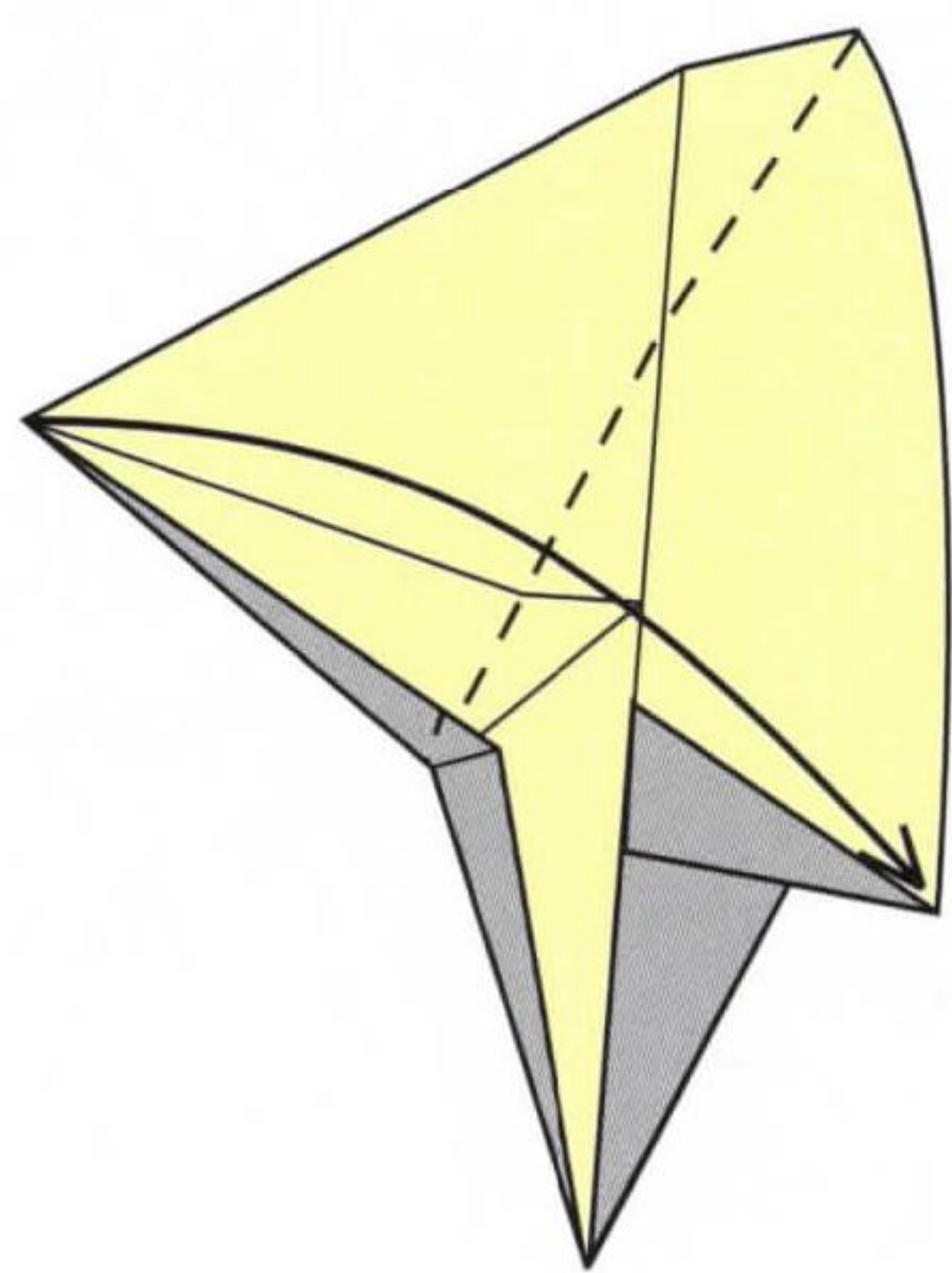
3. Valley-fold and unfold the indicated edges to their related creases.



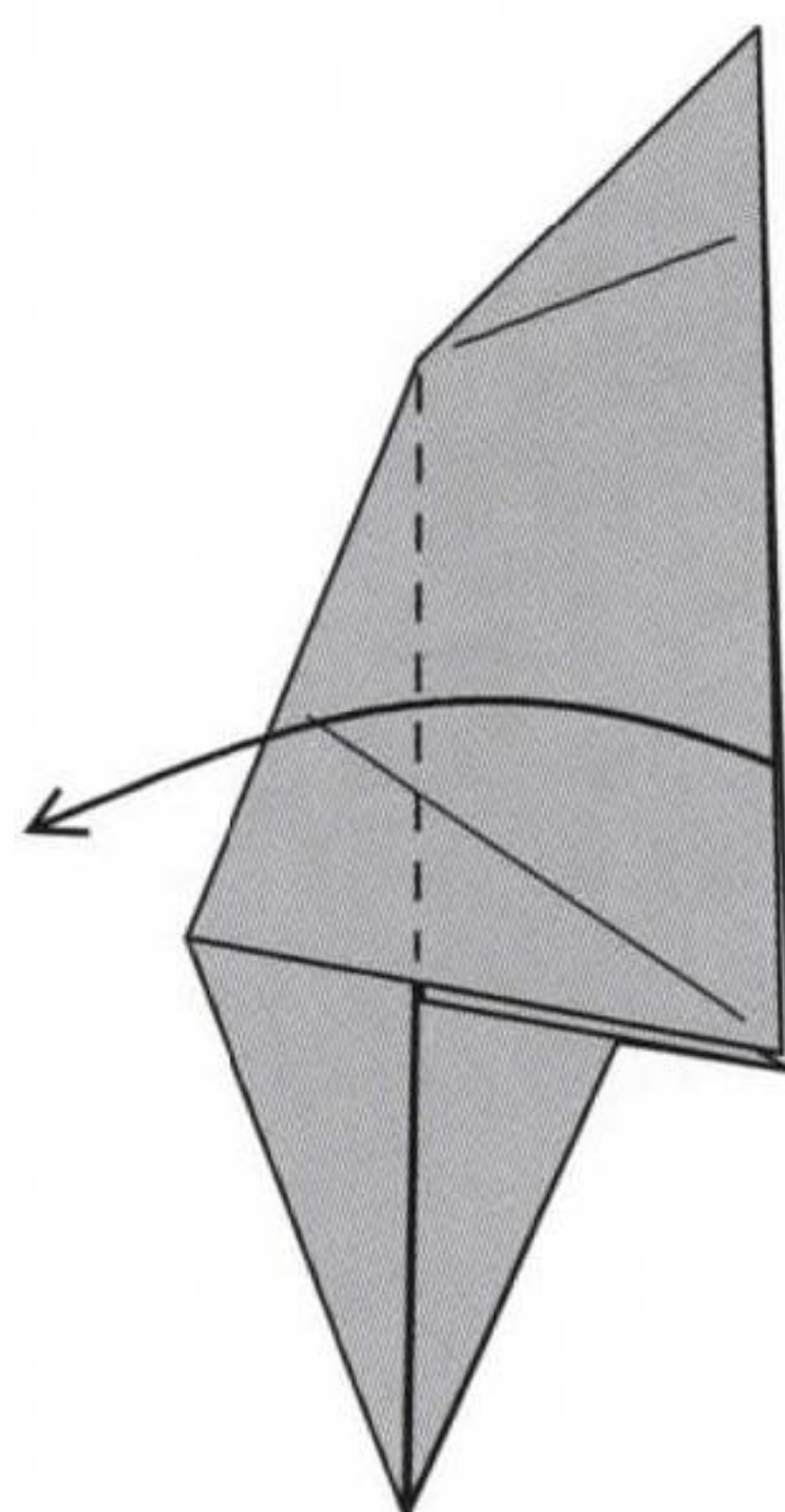
4. Move the right corner to touch the lower left edge of the diamond. Use the creases formed in step 3 to aid in placement. Fold flat. Look at step 5 for the shape.



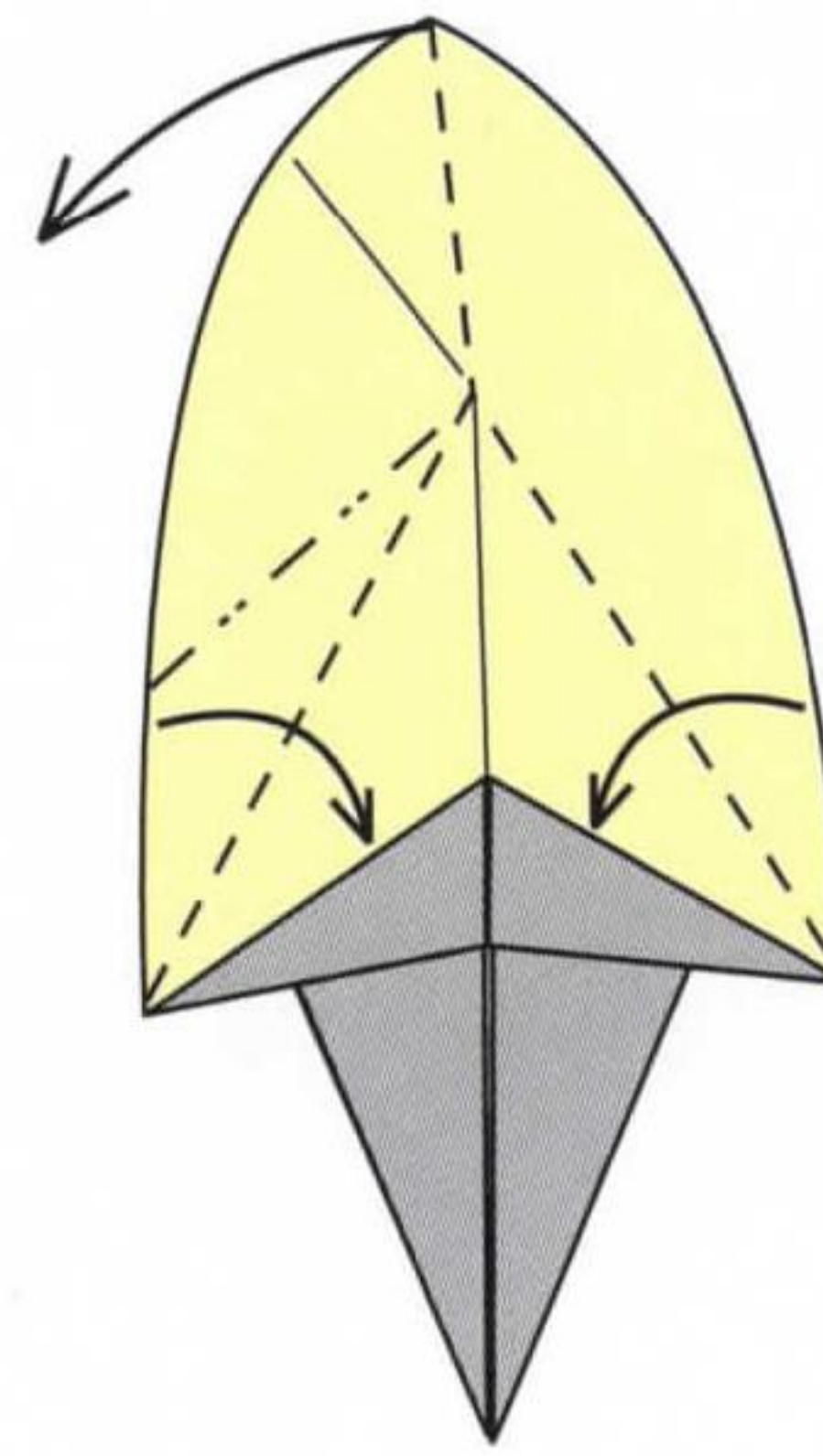
5. Valley-fold to the right. The crease should align with the center of the paper. The top corner should be folded flat.



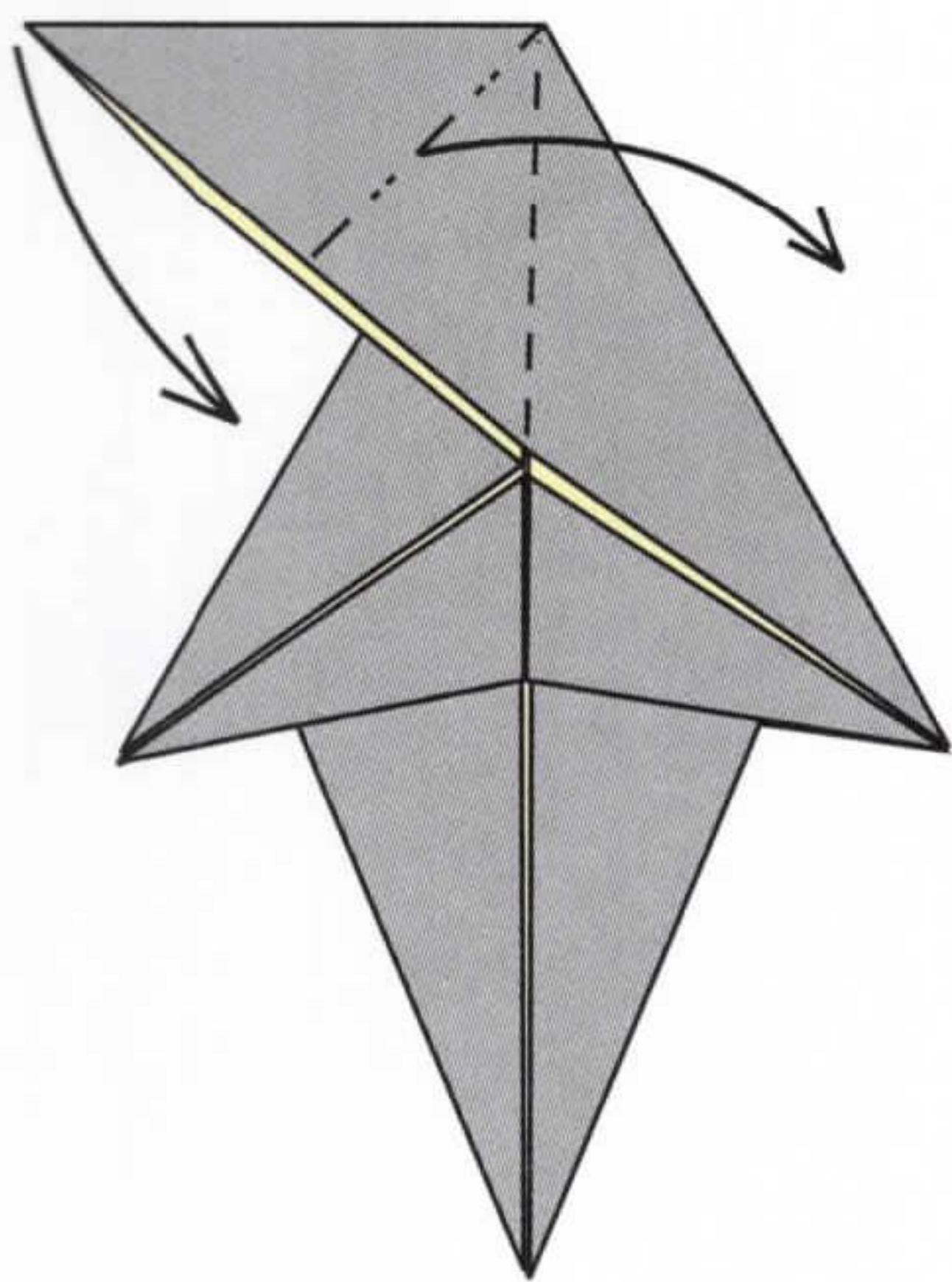
6. Repeat step 4 with the left corner, bringing it across to the right, using the existing creases.



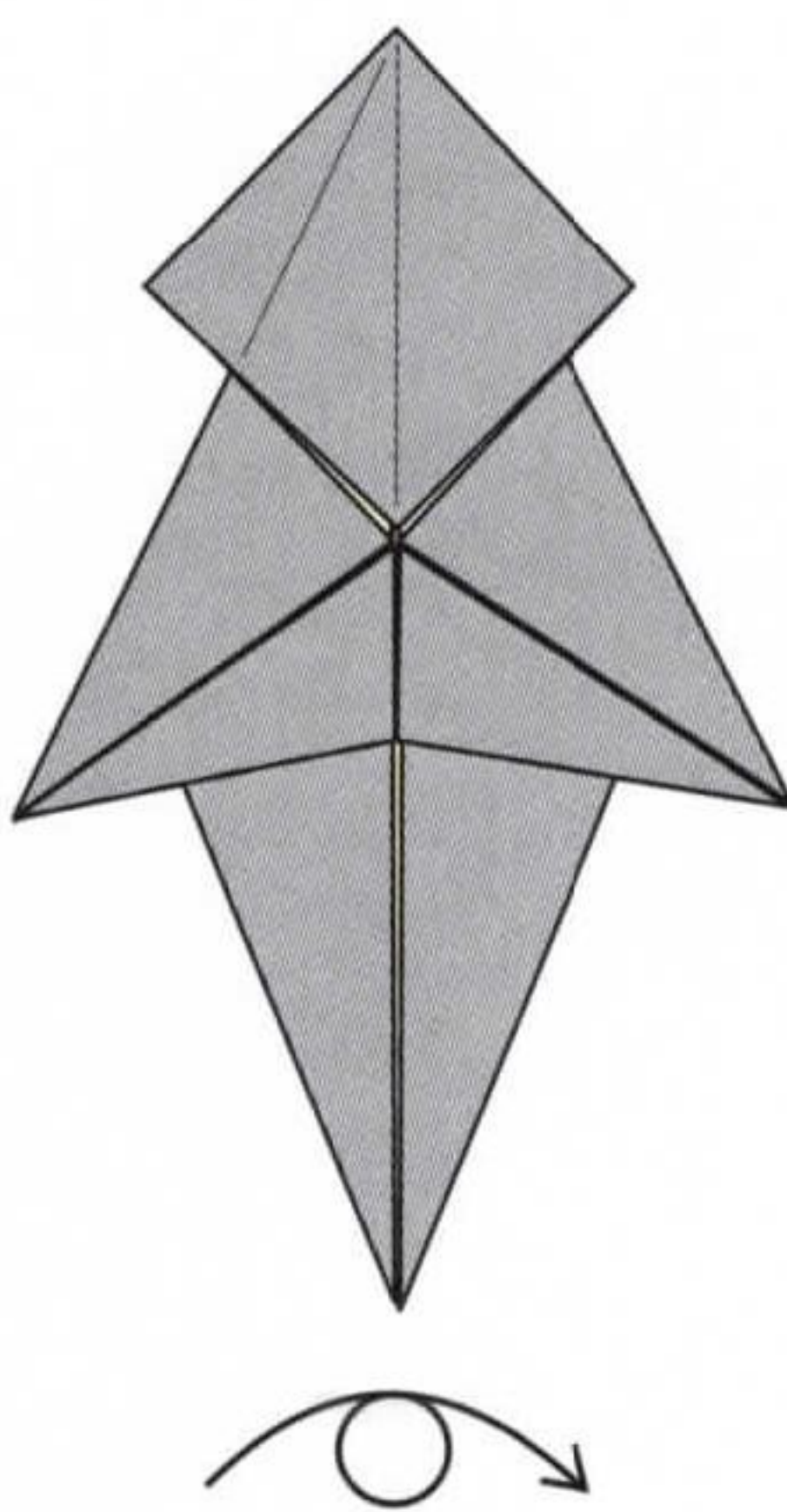
7. Open the paper by moving the top flap to the left, folding at the centerline.



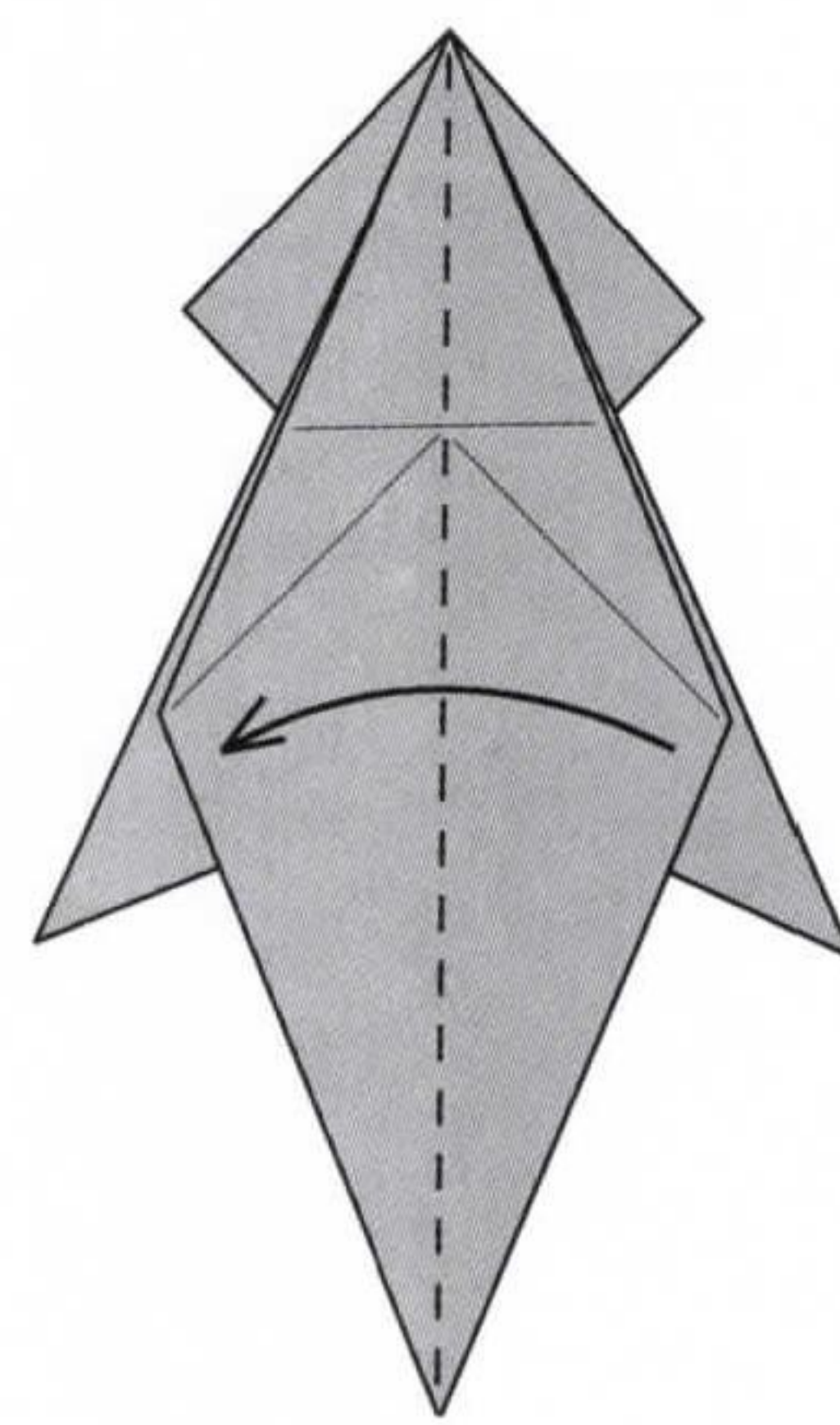
8. Fold the top corner in half and flatten to the left.



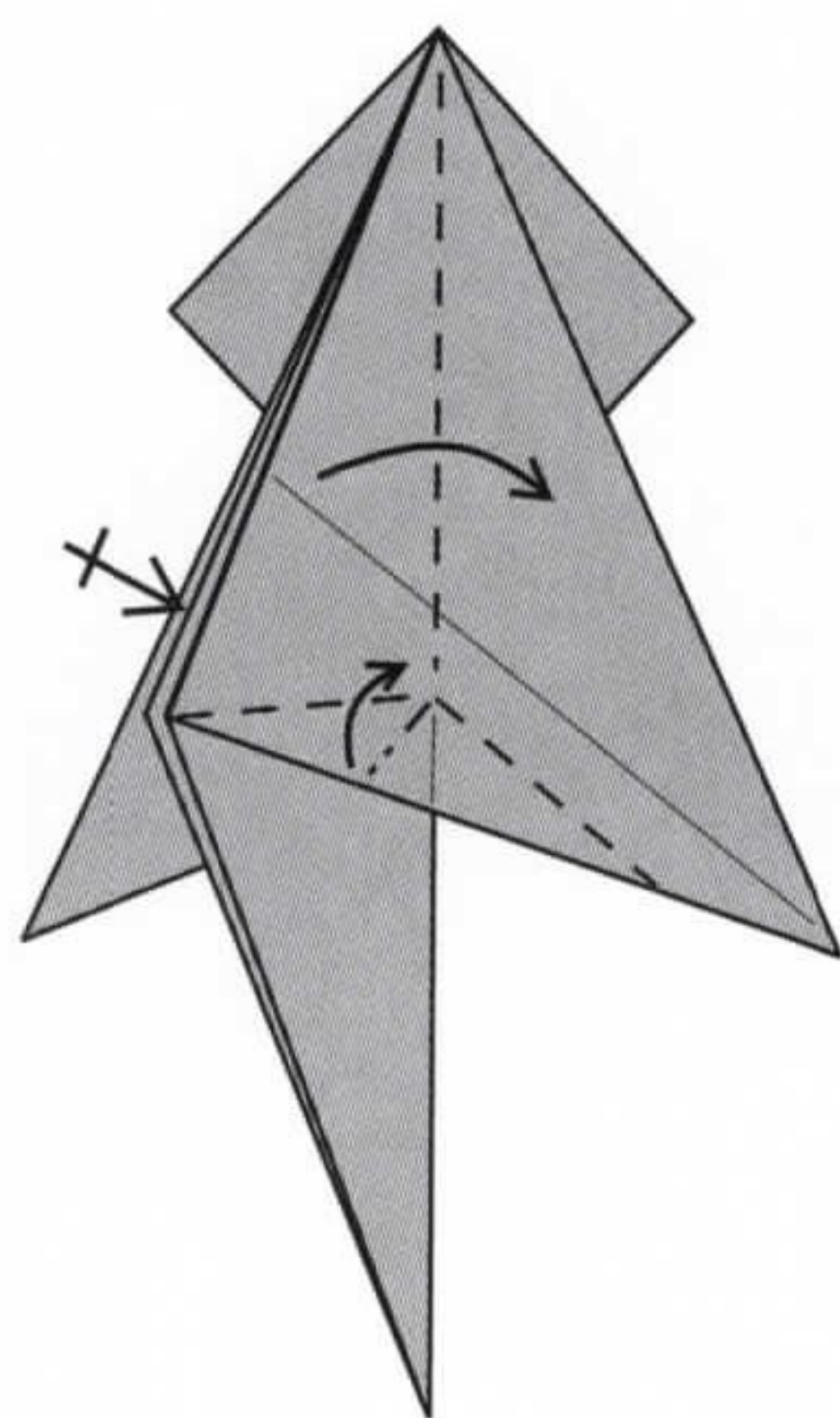
9. Squash-fold the top corner down.



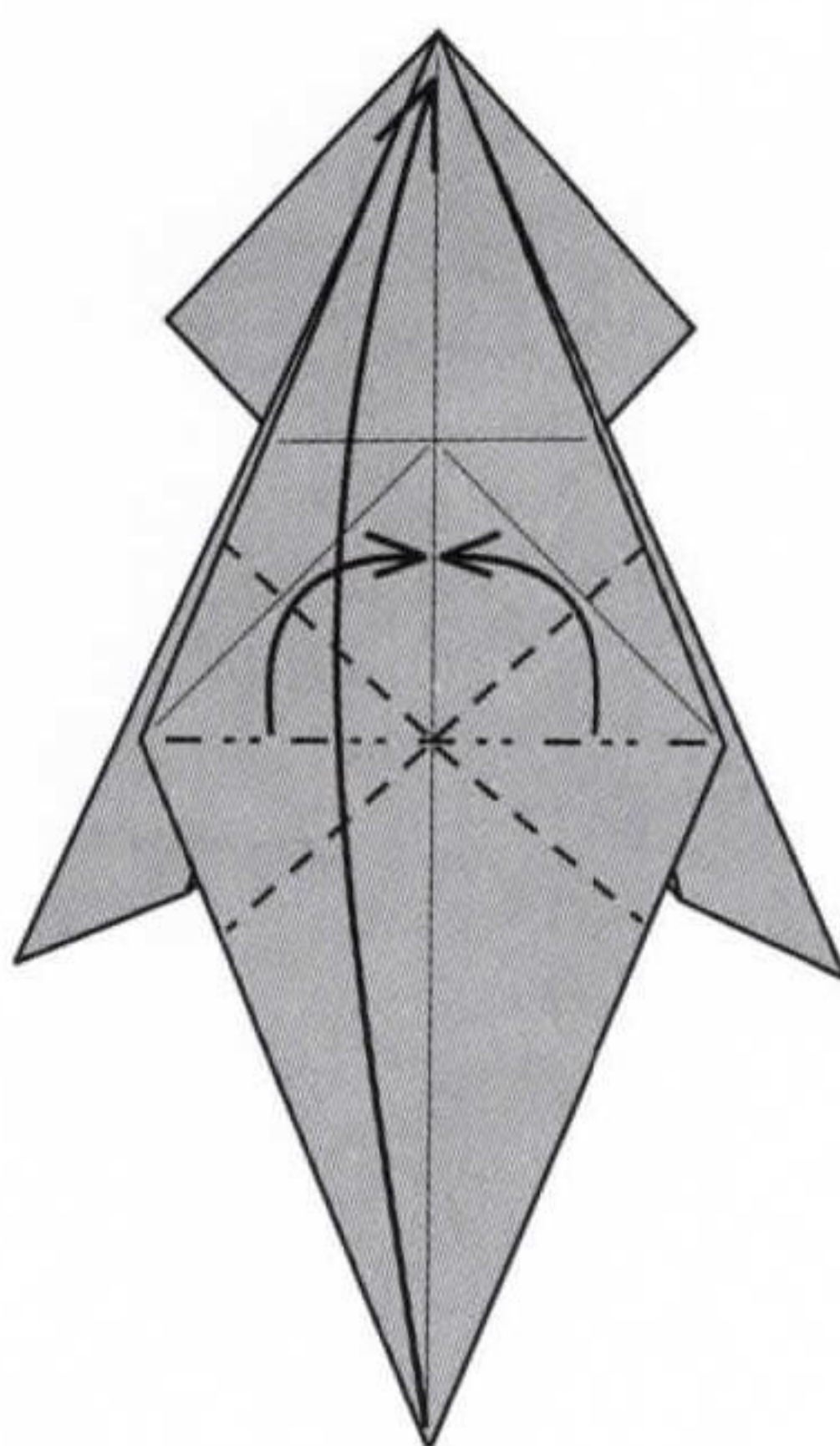
10. Your paper should look like this. Turn the model over, left to right.



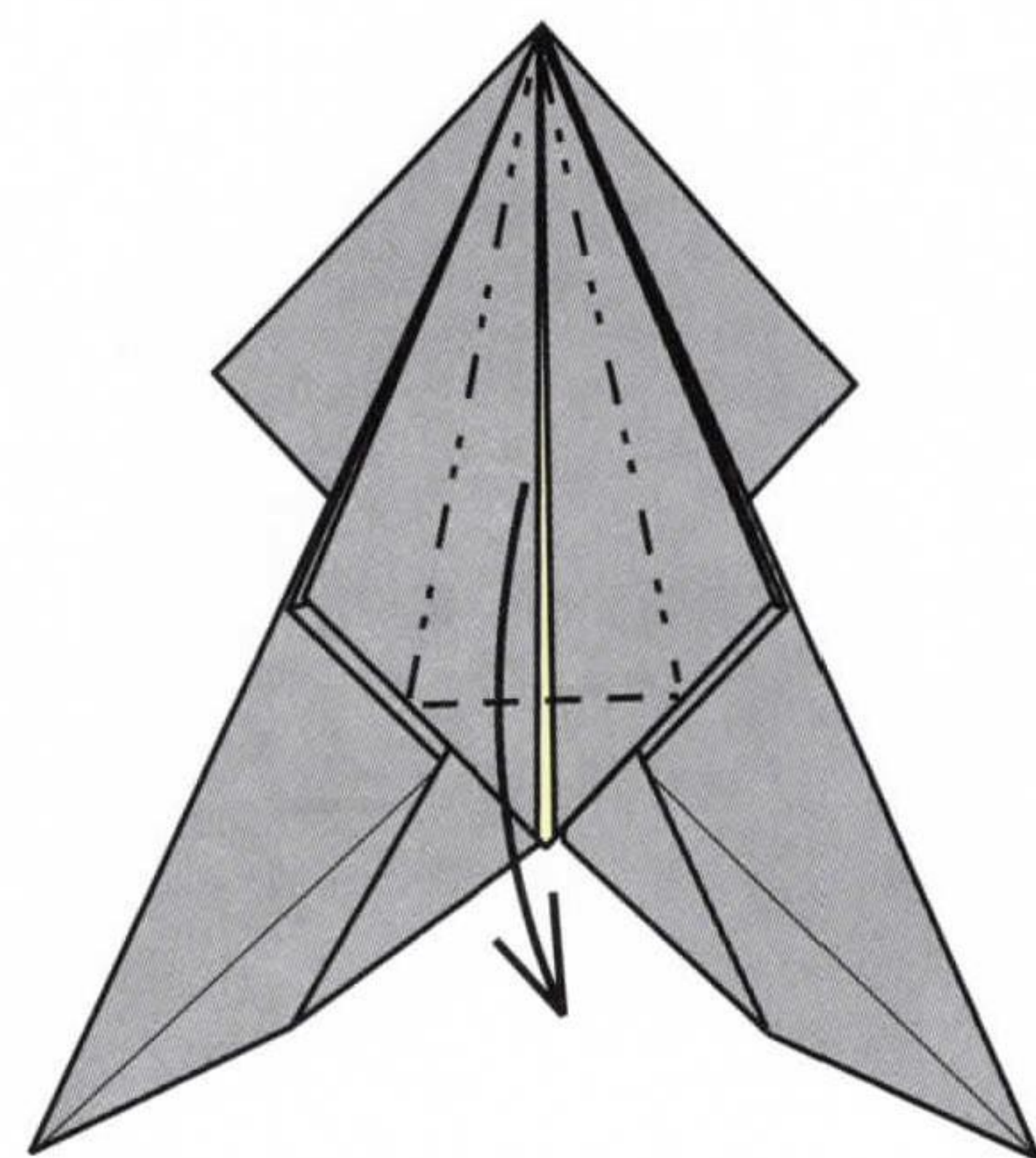
11. Move the right corner of the center diamond to the left.



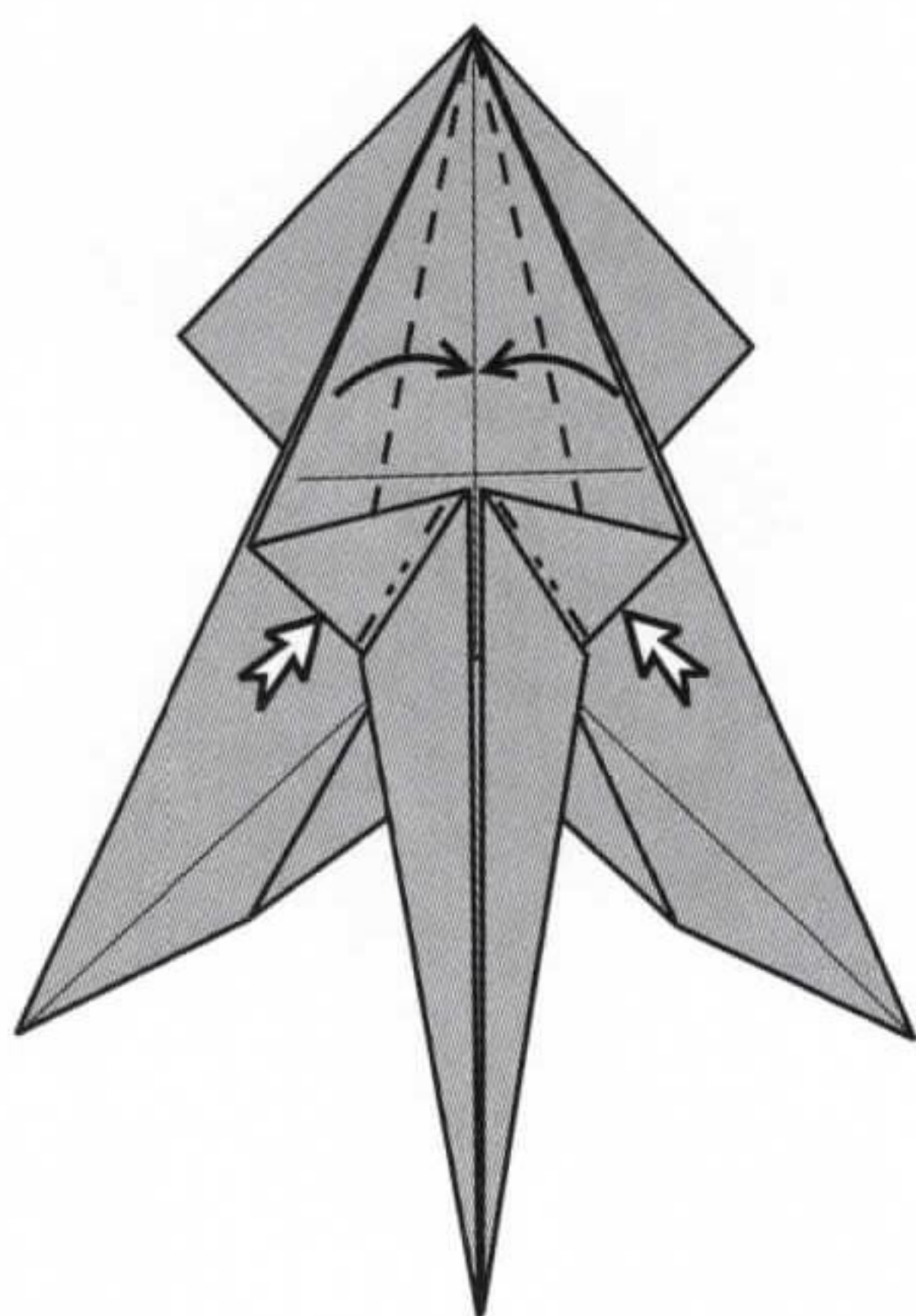
12. Push up on the lower edge of the right triangle as you bring the corner back, forming an inside-reverse fold. Repeat on the other side.



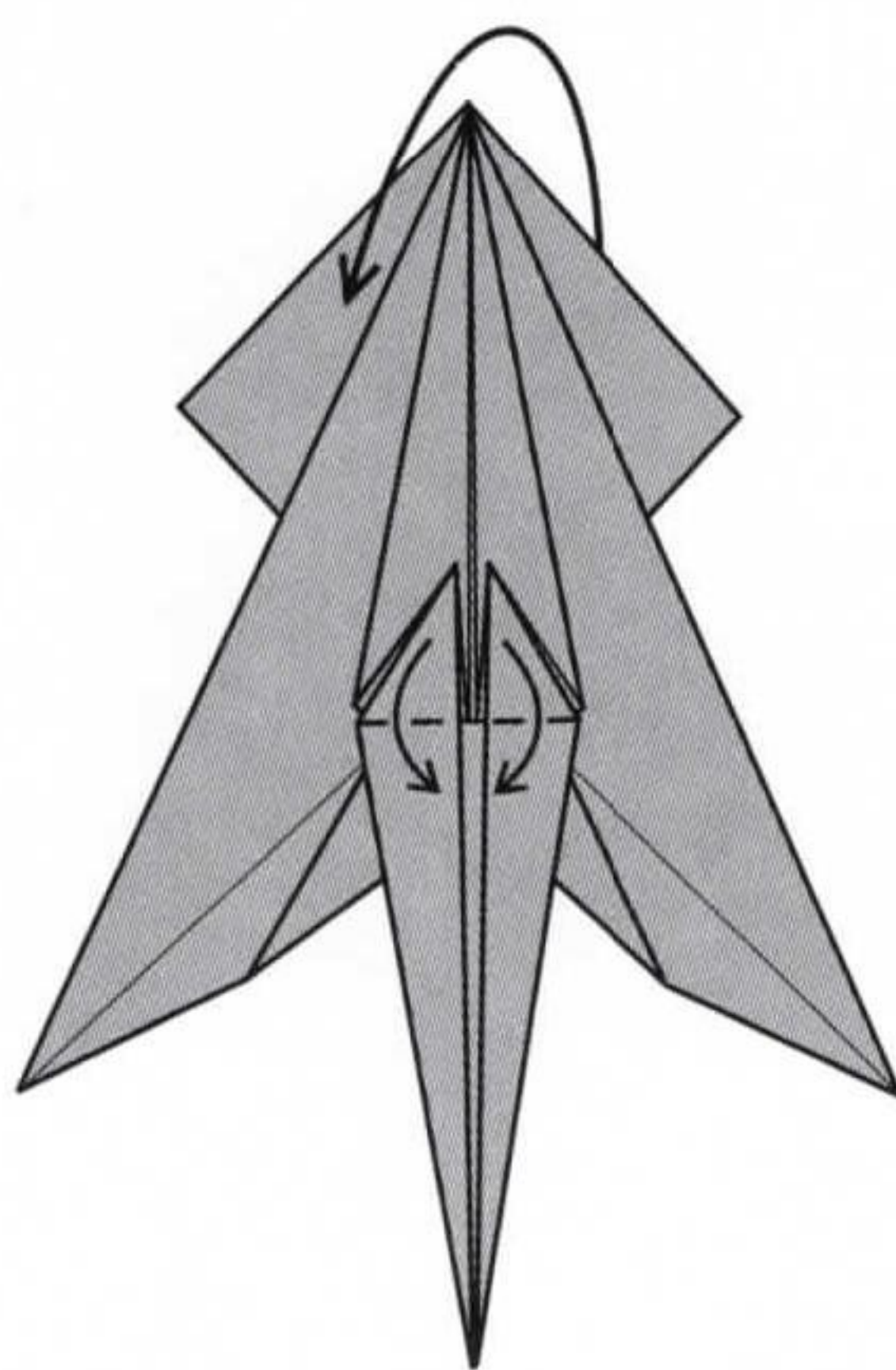
13. Inside-reverse-fold the left and right corners of the center diamond as you move the bottom corner to the top.



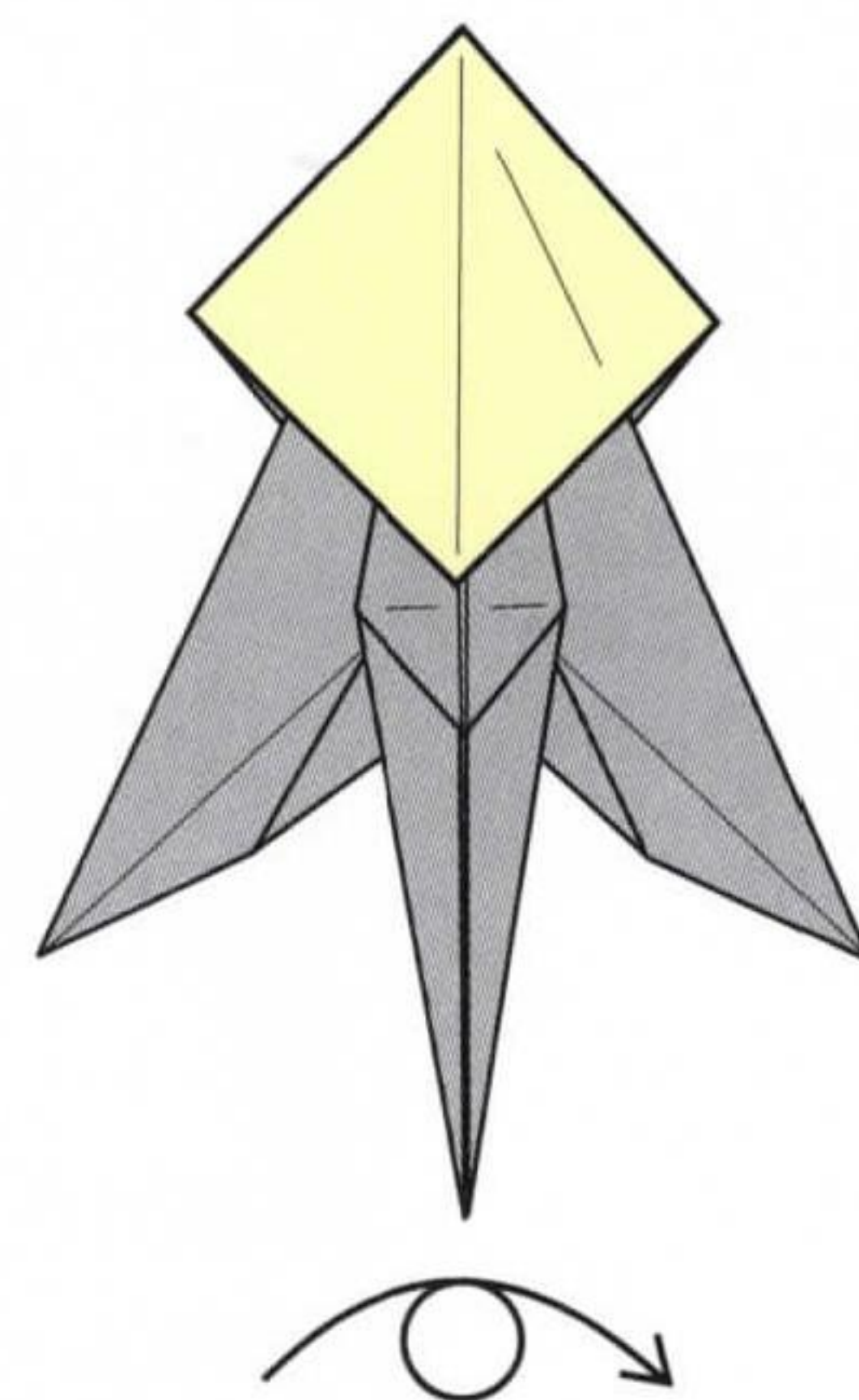
14. Mountain-fold the sides of the corner point to the center as you fold the point down. This is a petal fold.



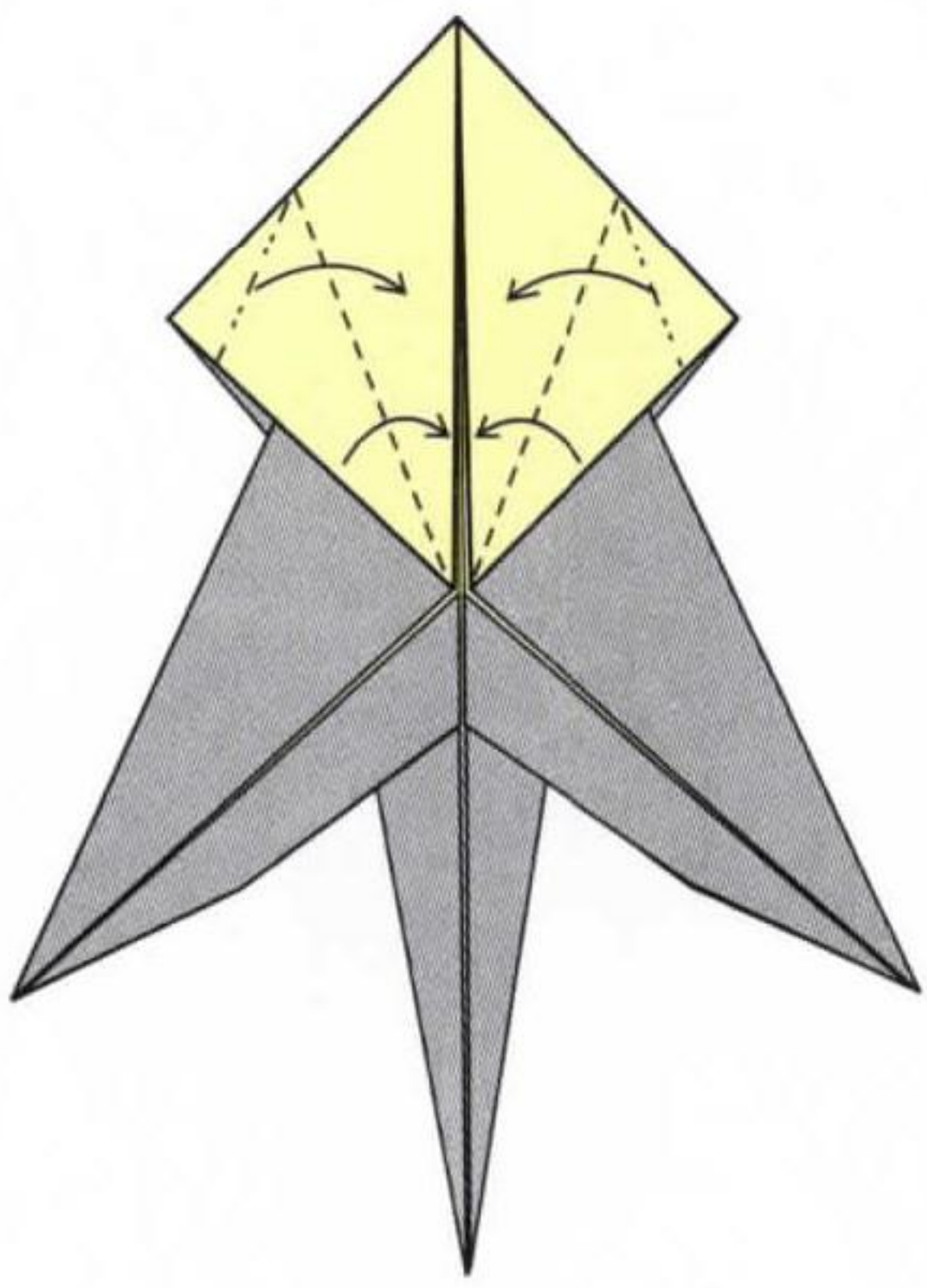
15. Narrow the upper part of the section to mirror the shape of the lower petal.



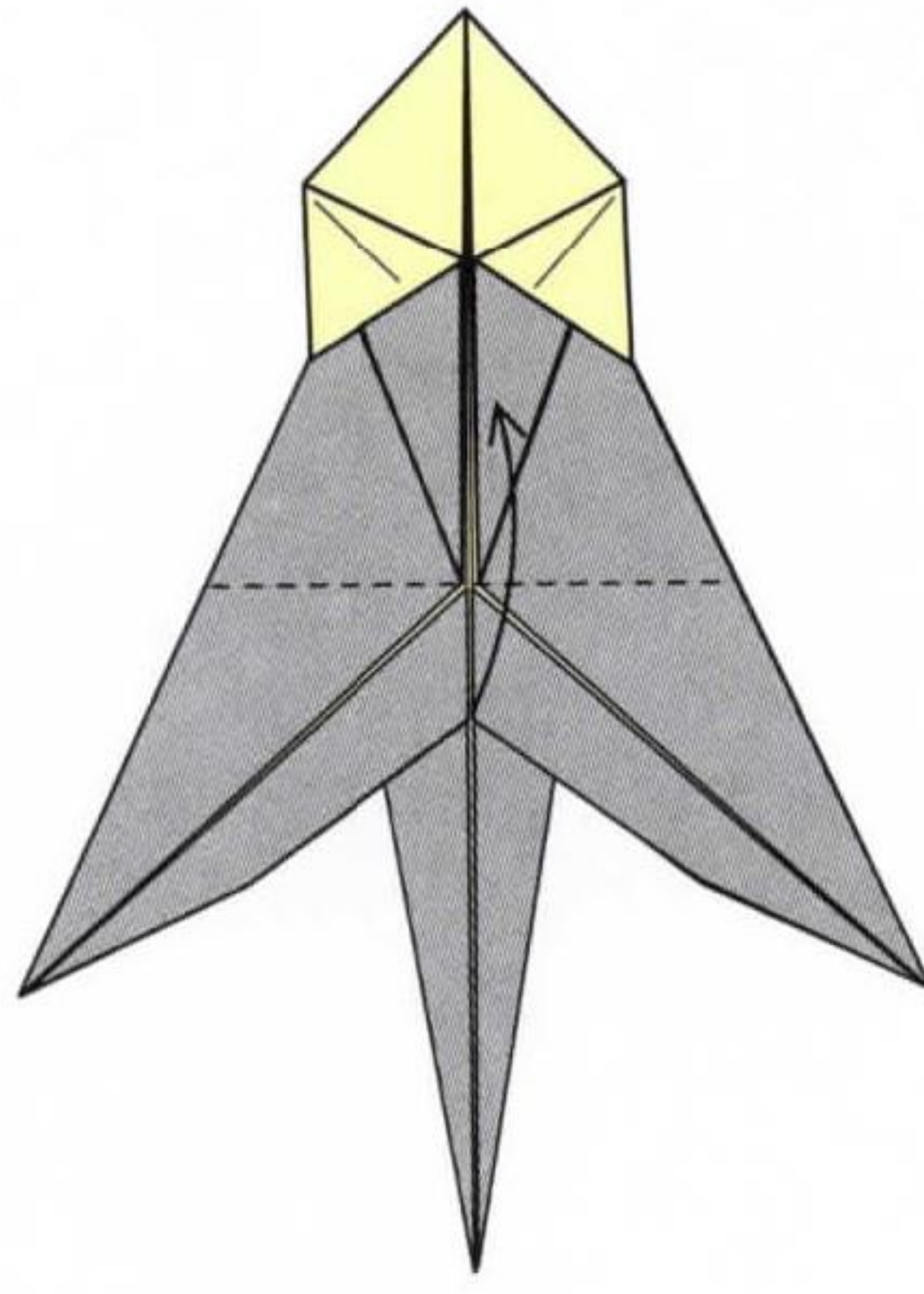
16. Turn the top point inside out. Fold the center points down.



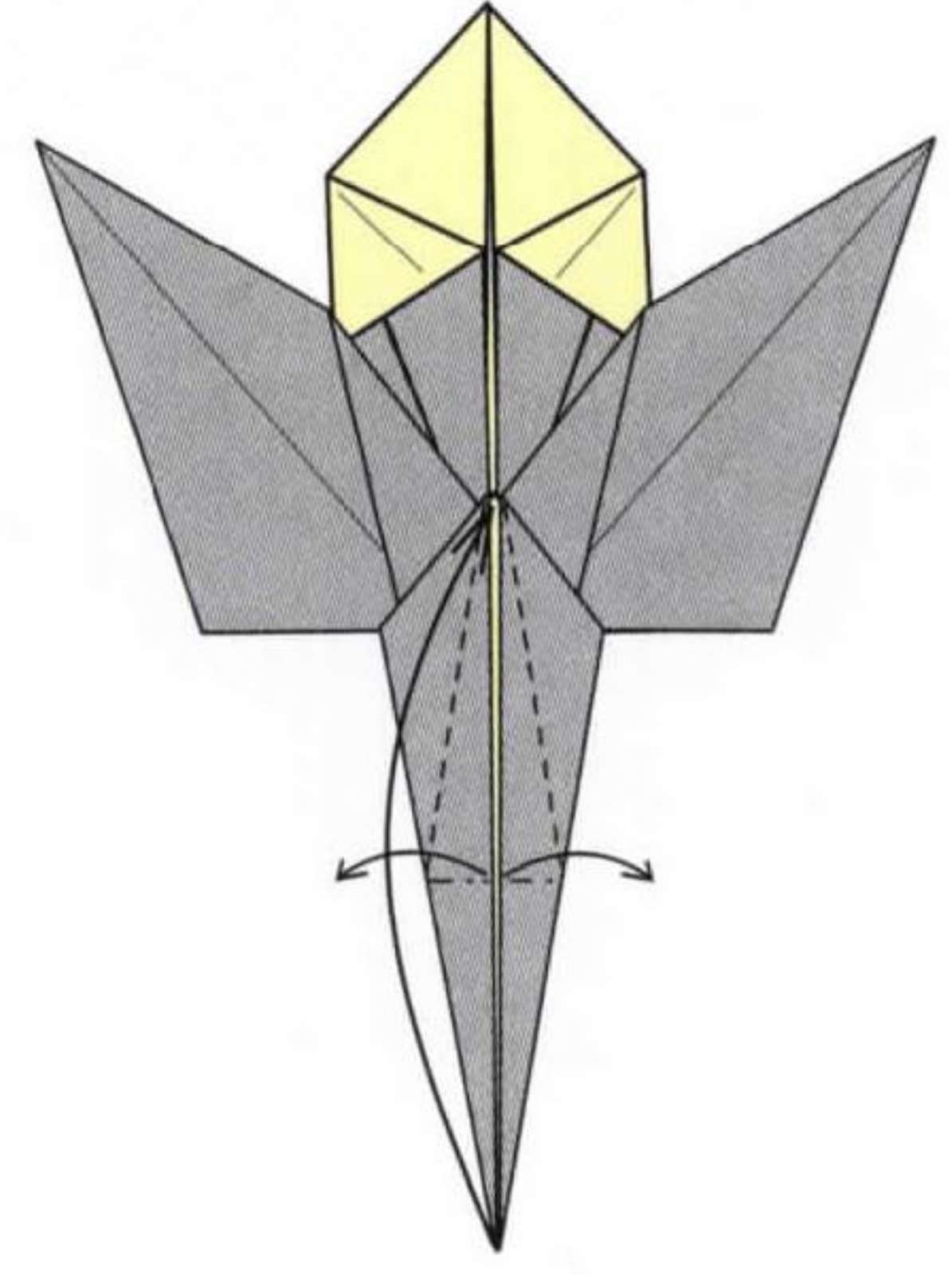
17. Turn the model over, left to right.



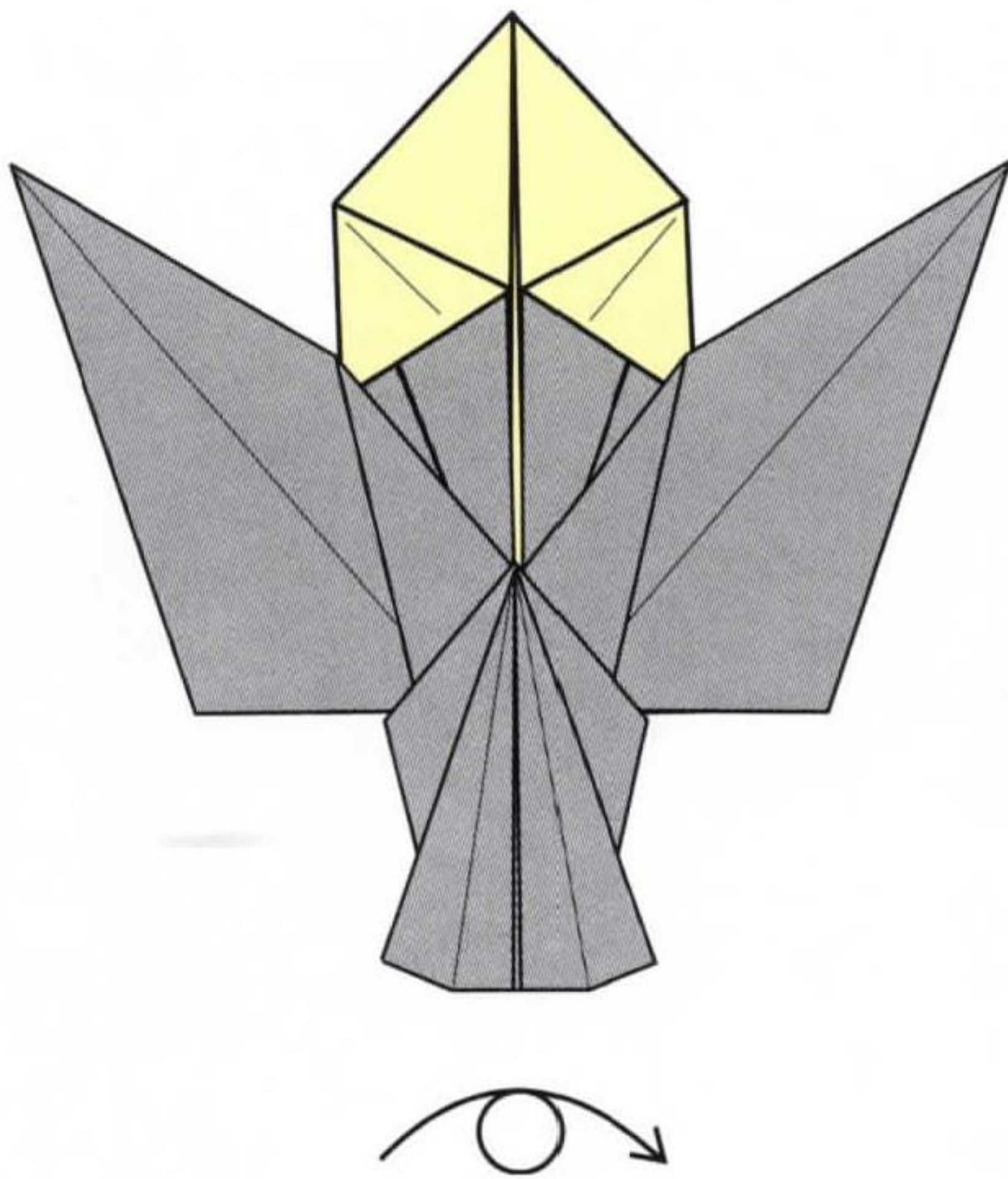
18. Fold the bottom edges of the yellow diamond to the center, squashing the left and right corners.



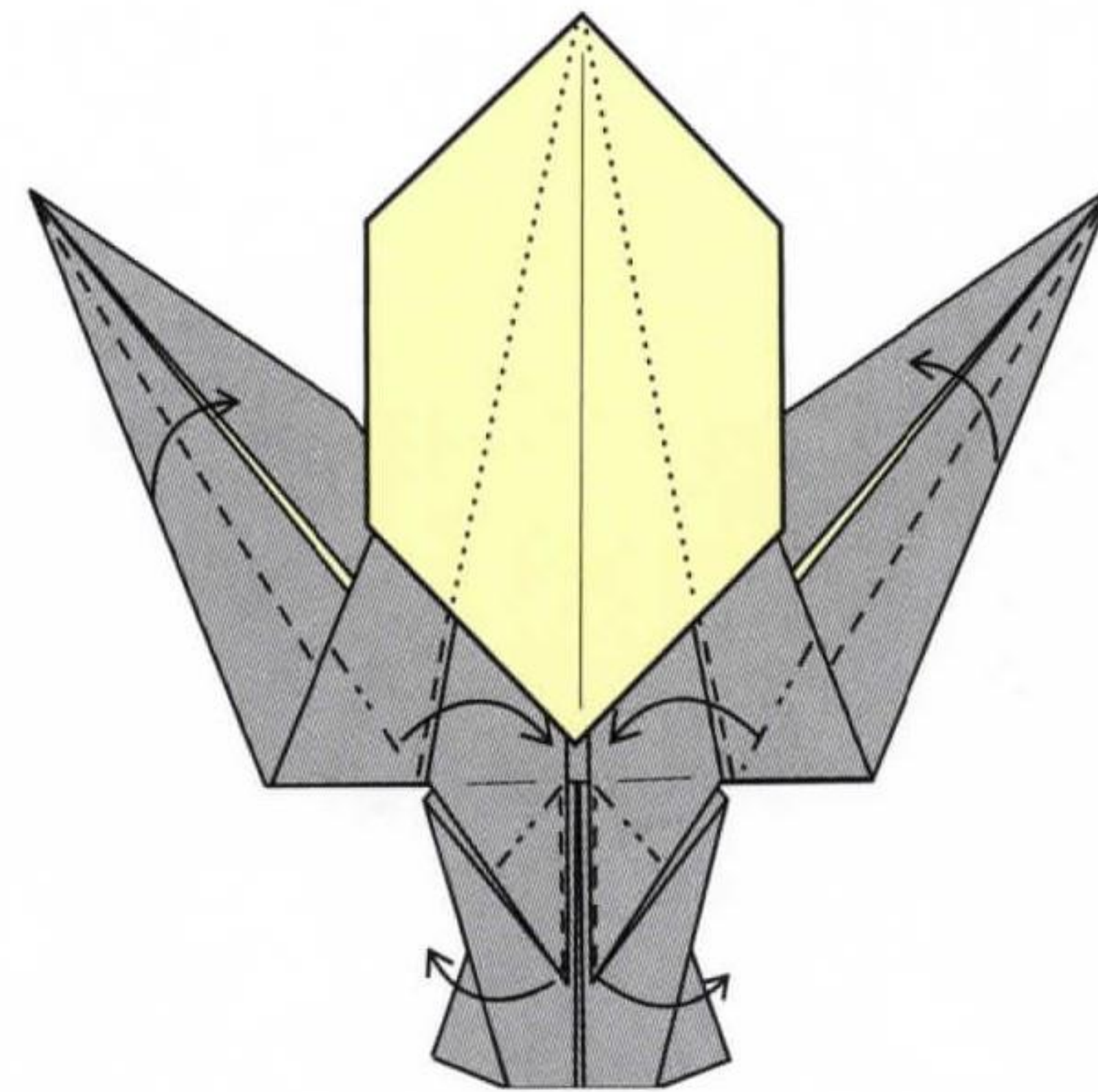
19. Fold up the wings.



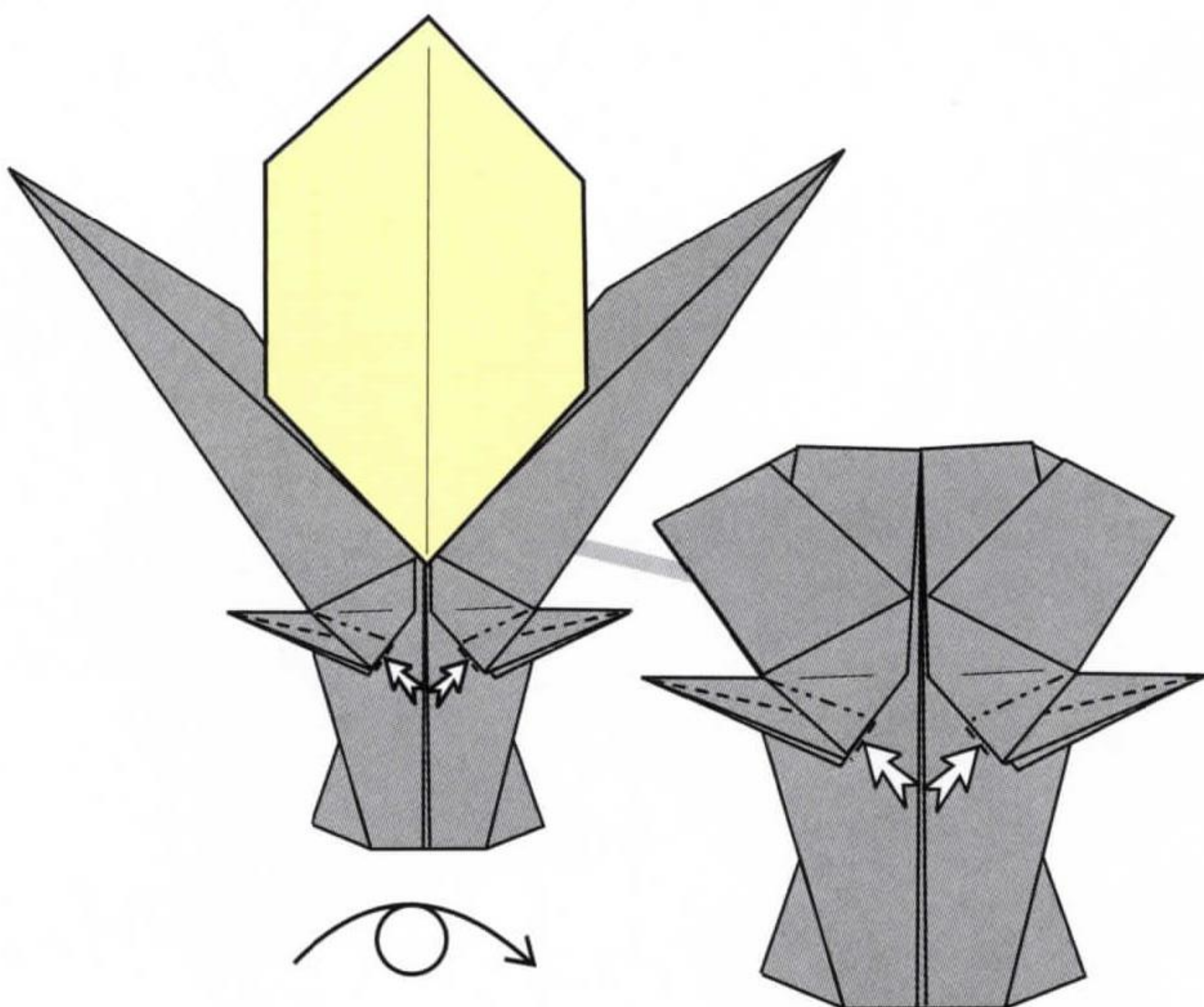
20. Fold the lower point up to meet the mid-point, pulling out on the mid-section to form the tail.



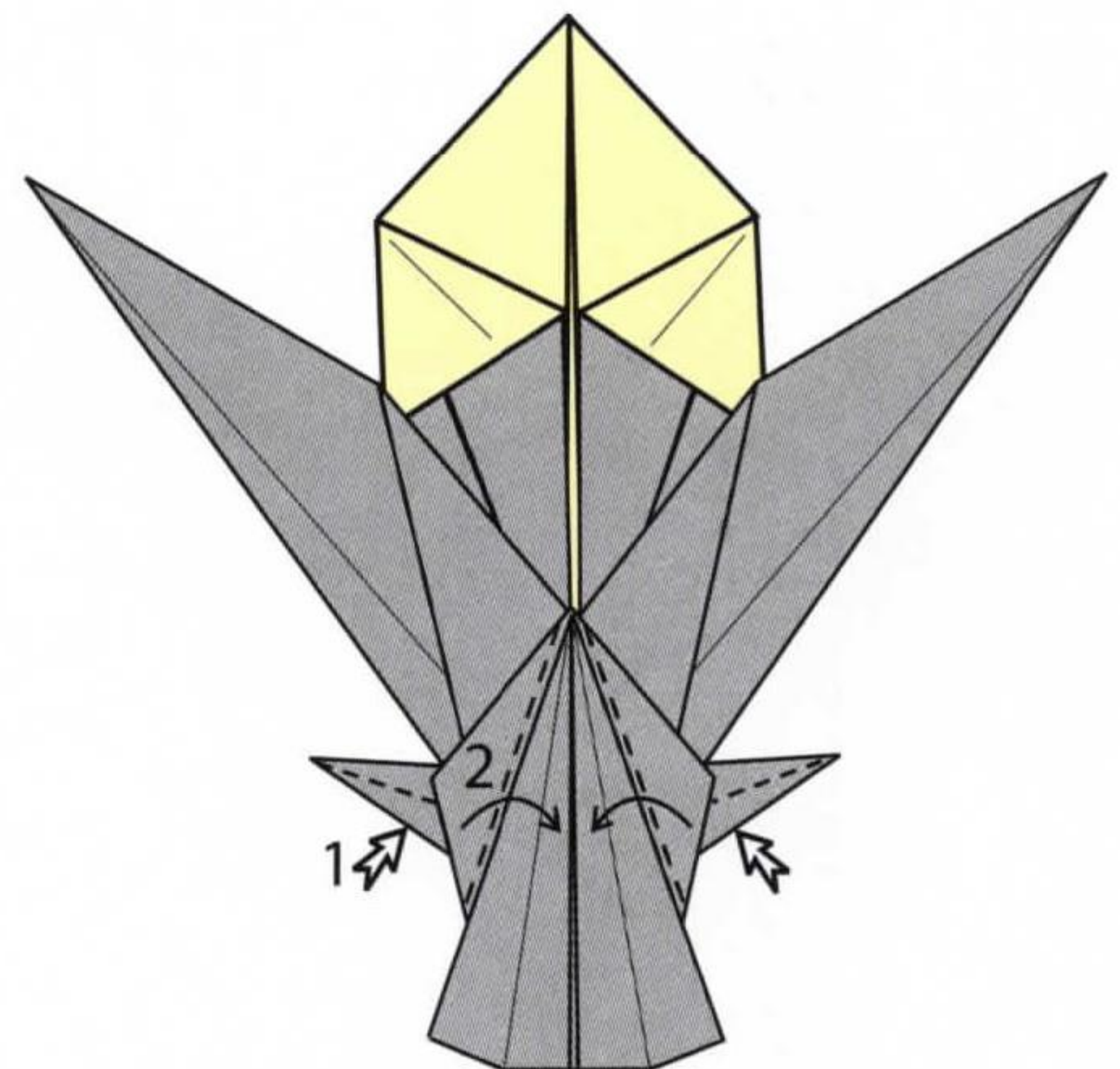
21. Turn the model over, left to right.



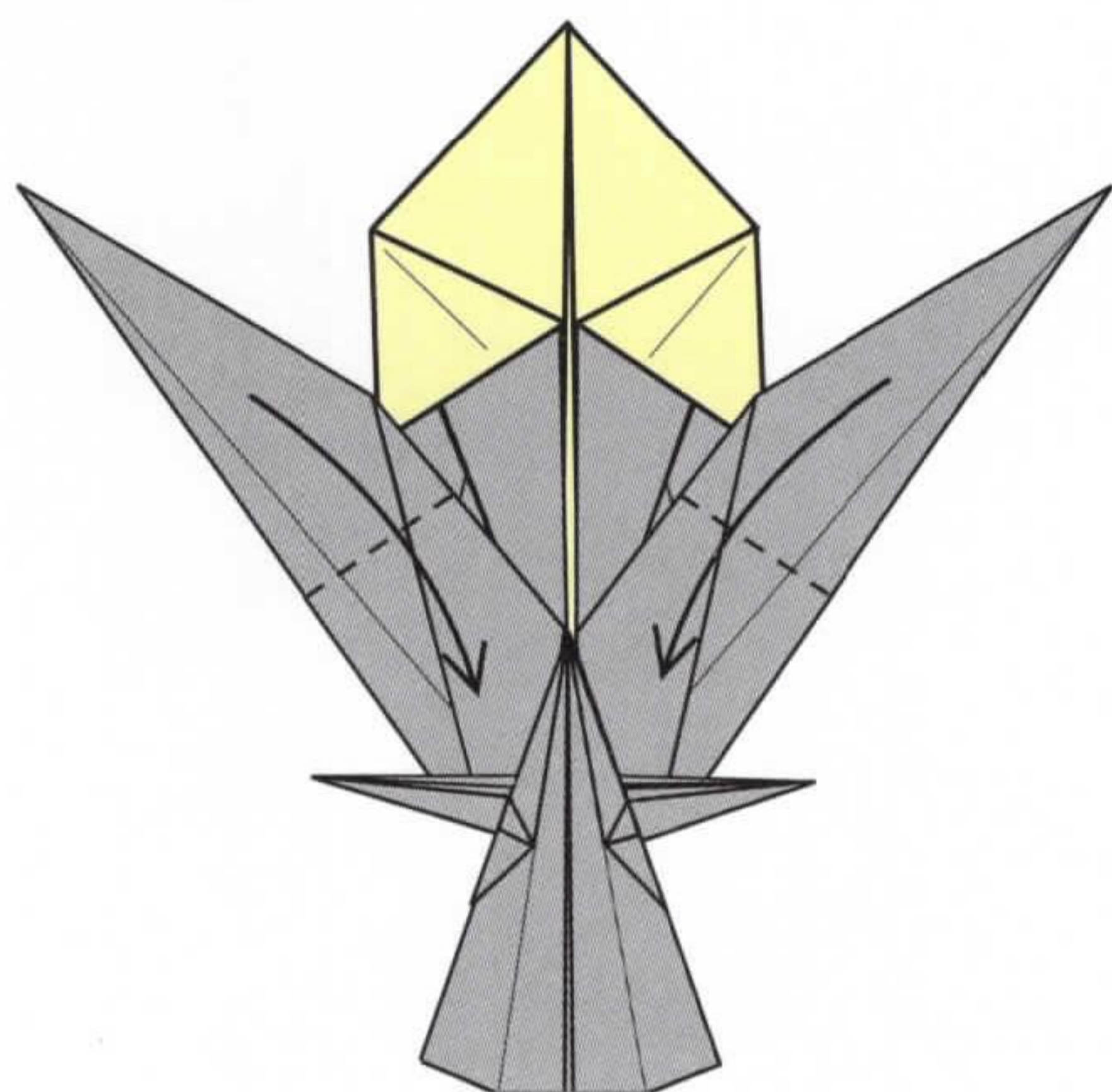
22. Fold in the upper layers at the bottom of the wings to meet at the center. Narrow the outside edges of the wings at the same time. Inside-reverse-fold the mid-points for the feet.



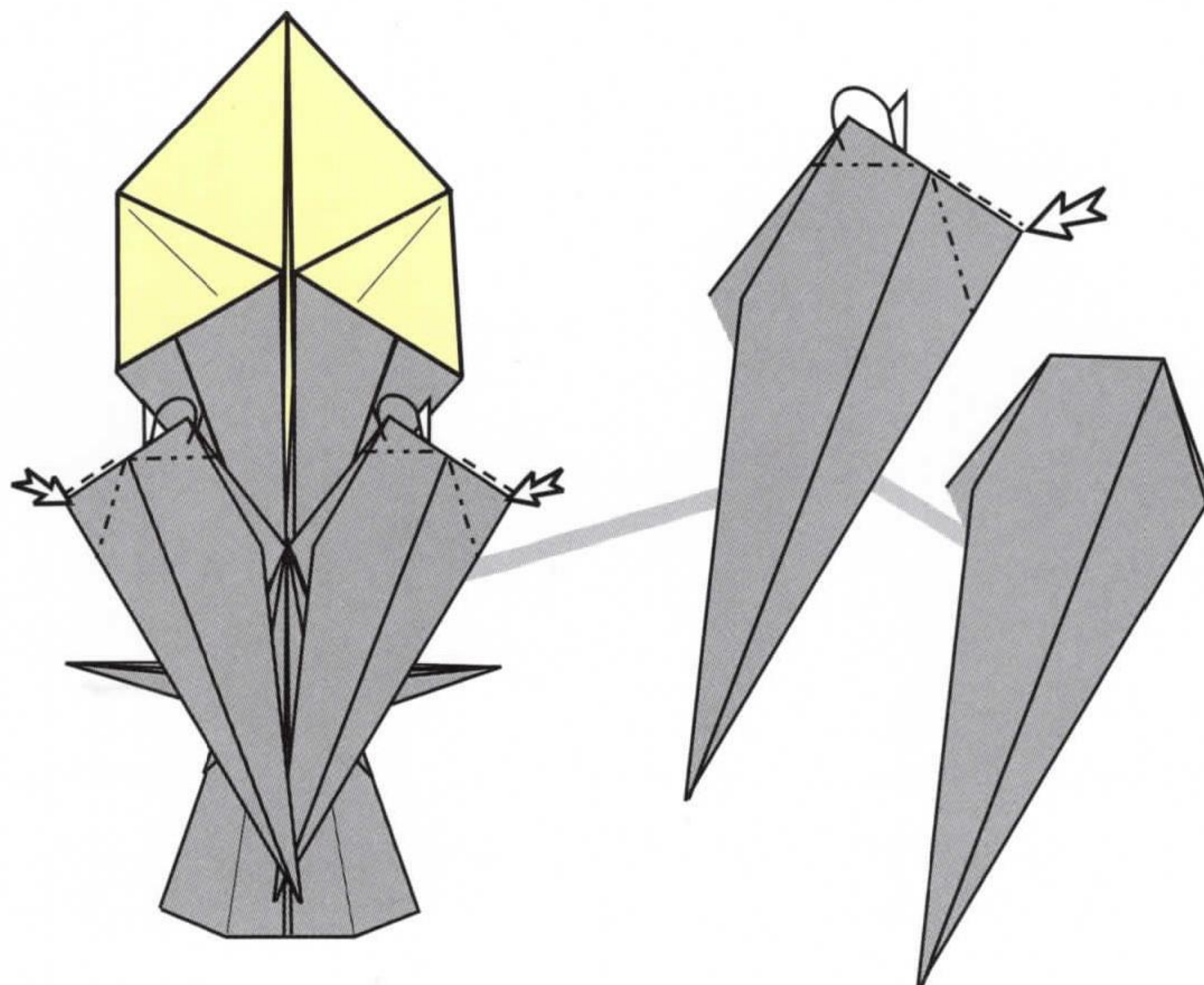
23. Inside-reverse-fold each point to narrow it. Turn the model over, left to right.



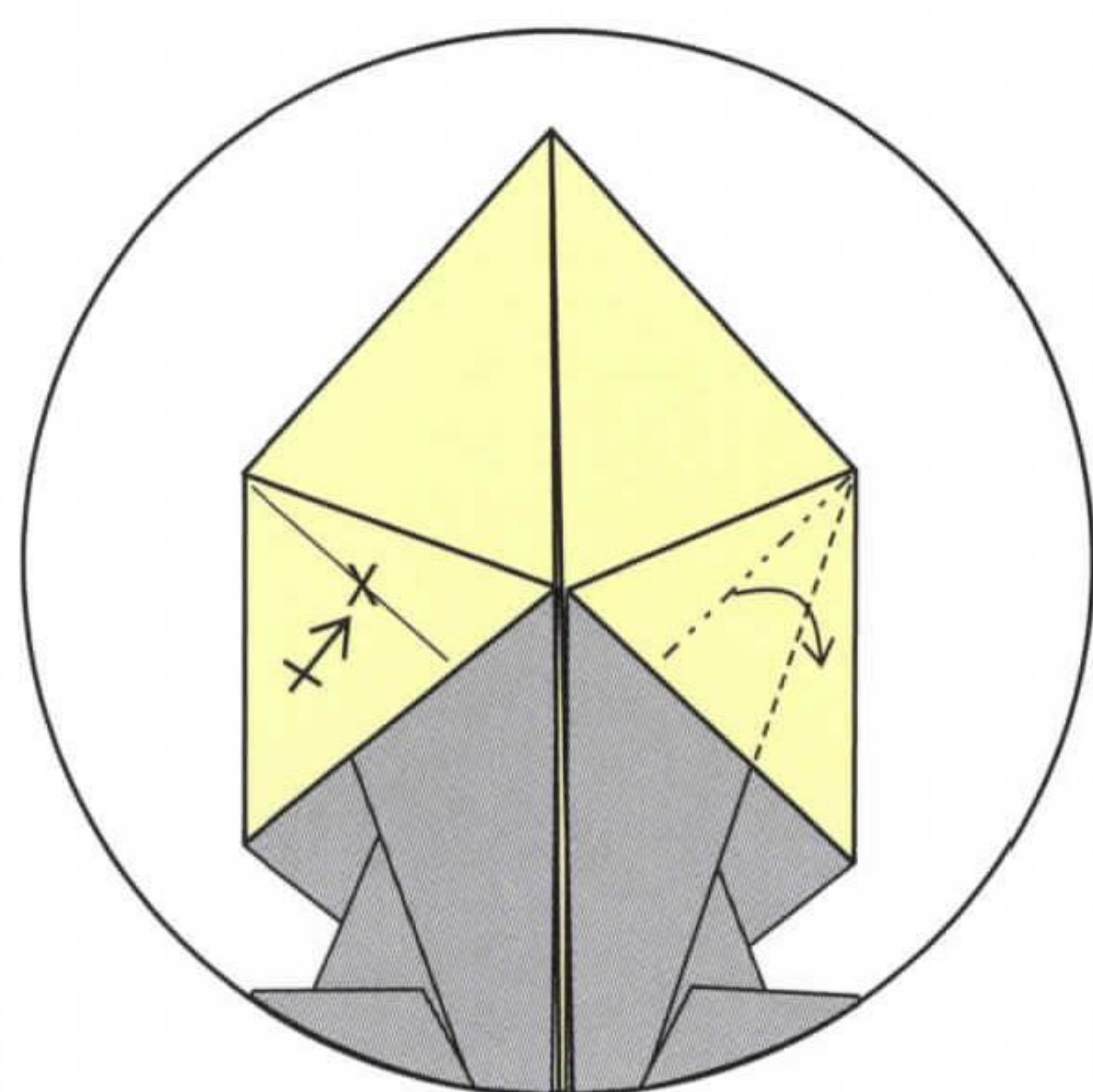
24. Inside-reverse-fold the feet. Fold the indicated edges over the top of the tail.



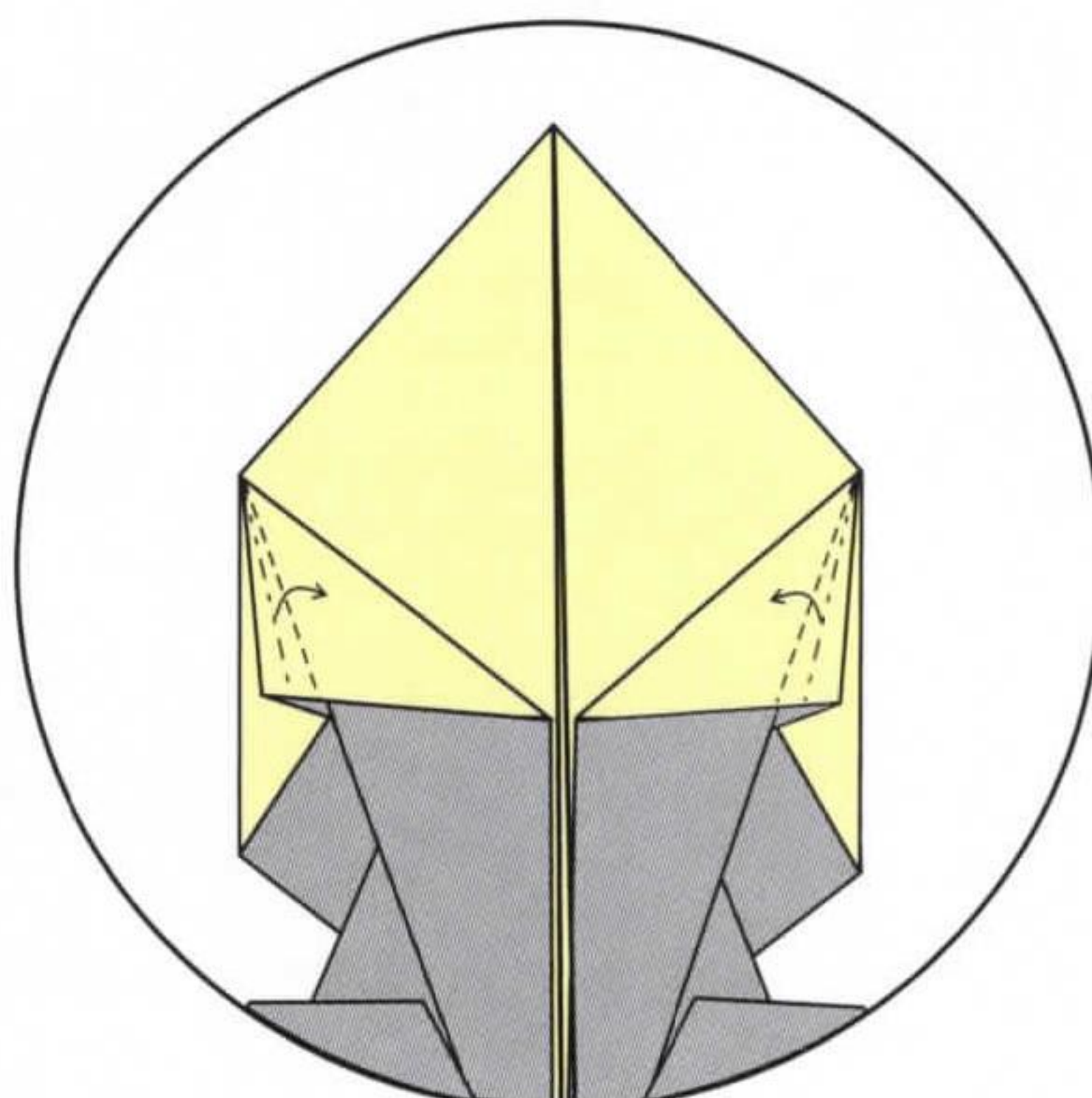
25. Fold the wing tips downward.



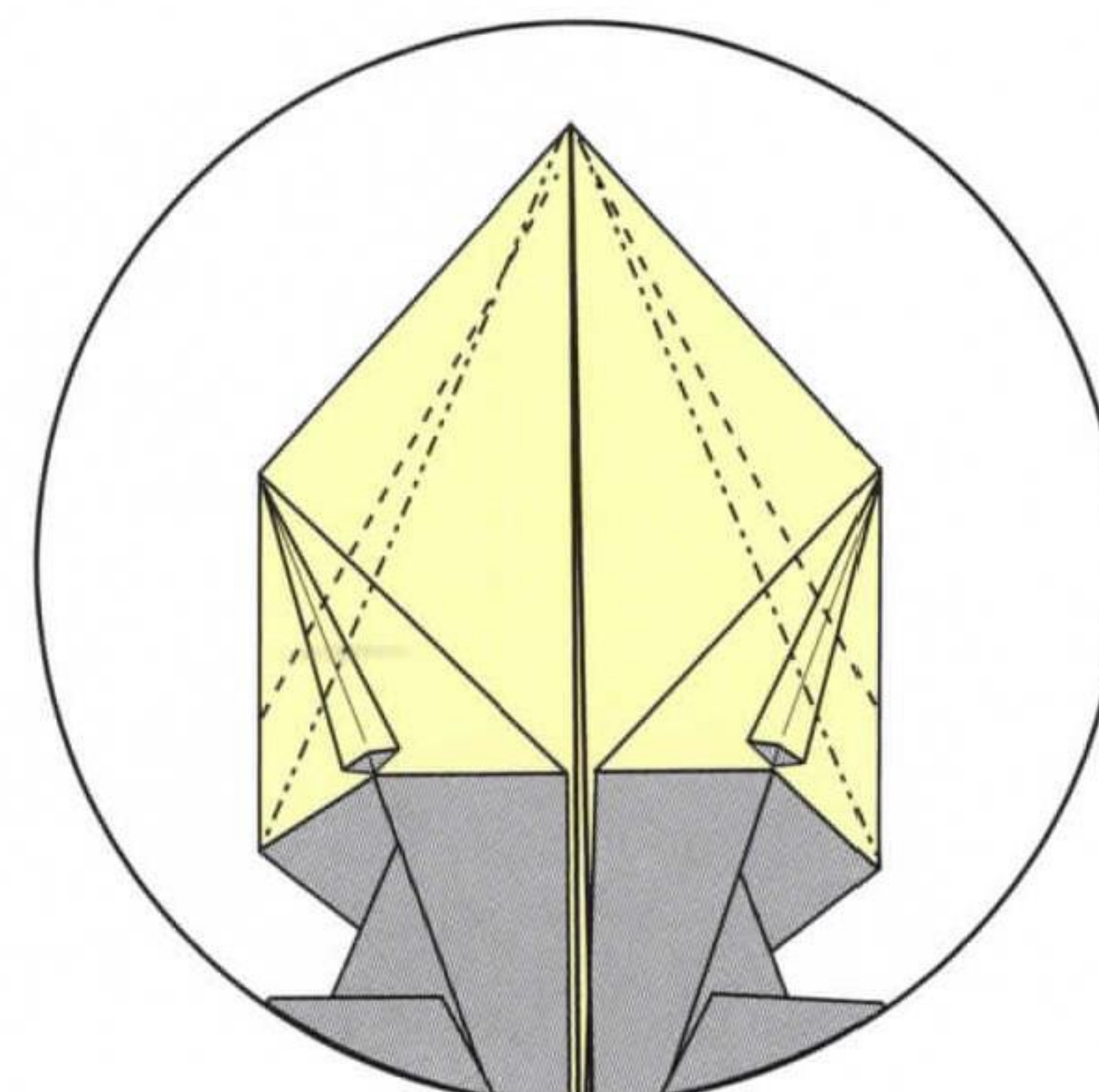
26. Tuck in each corner to form rounder shoulders.



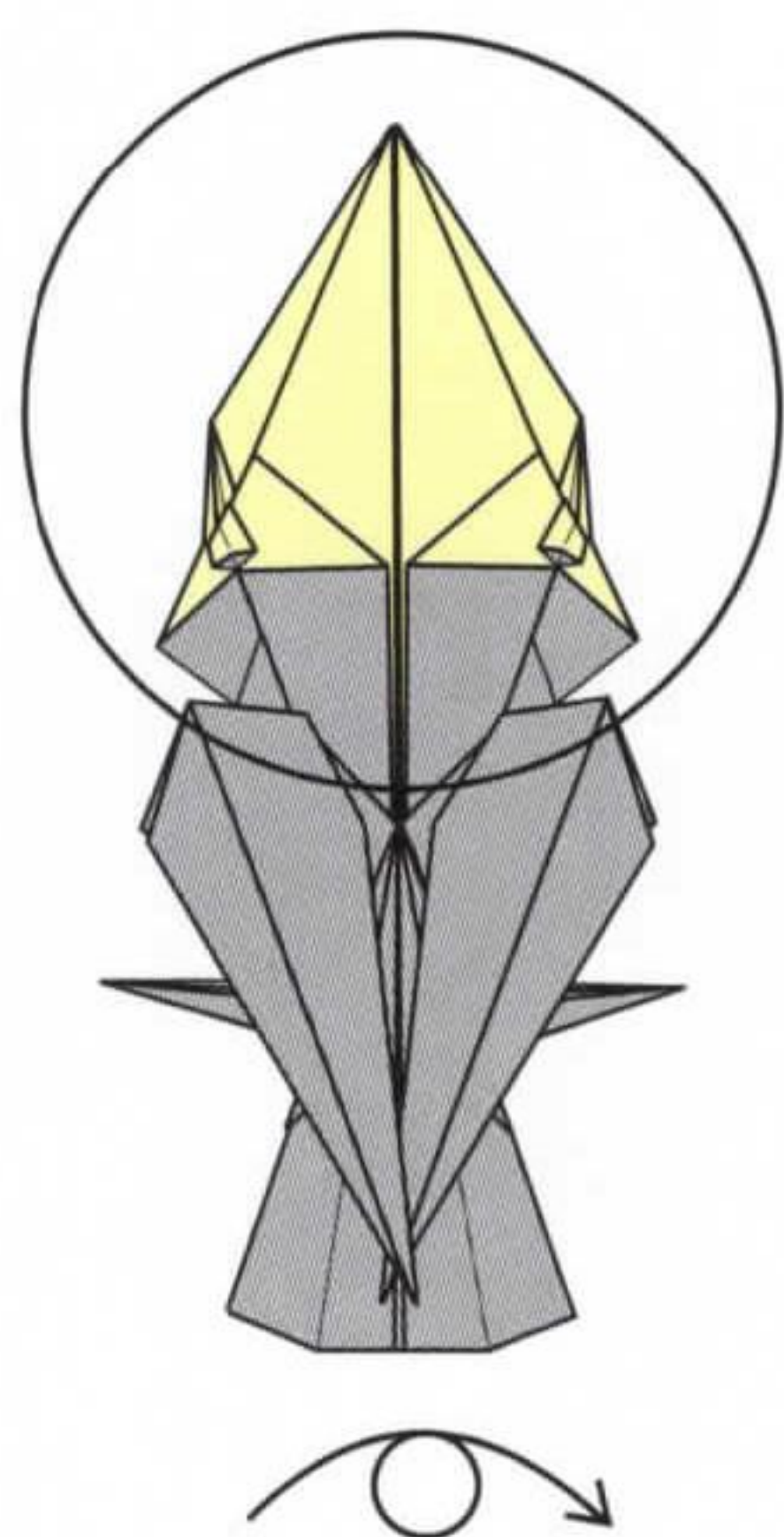
27. Pull more yellow outward from the folded flap by forming new mountain folds so that the yellow color extends straight across the model.



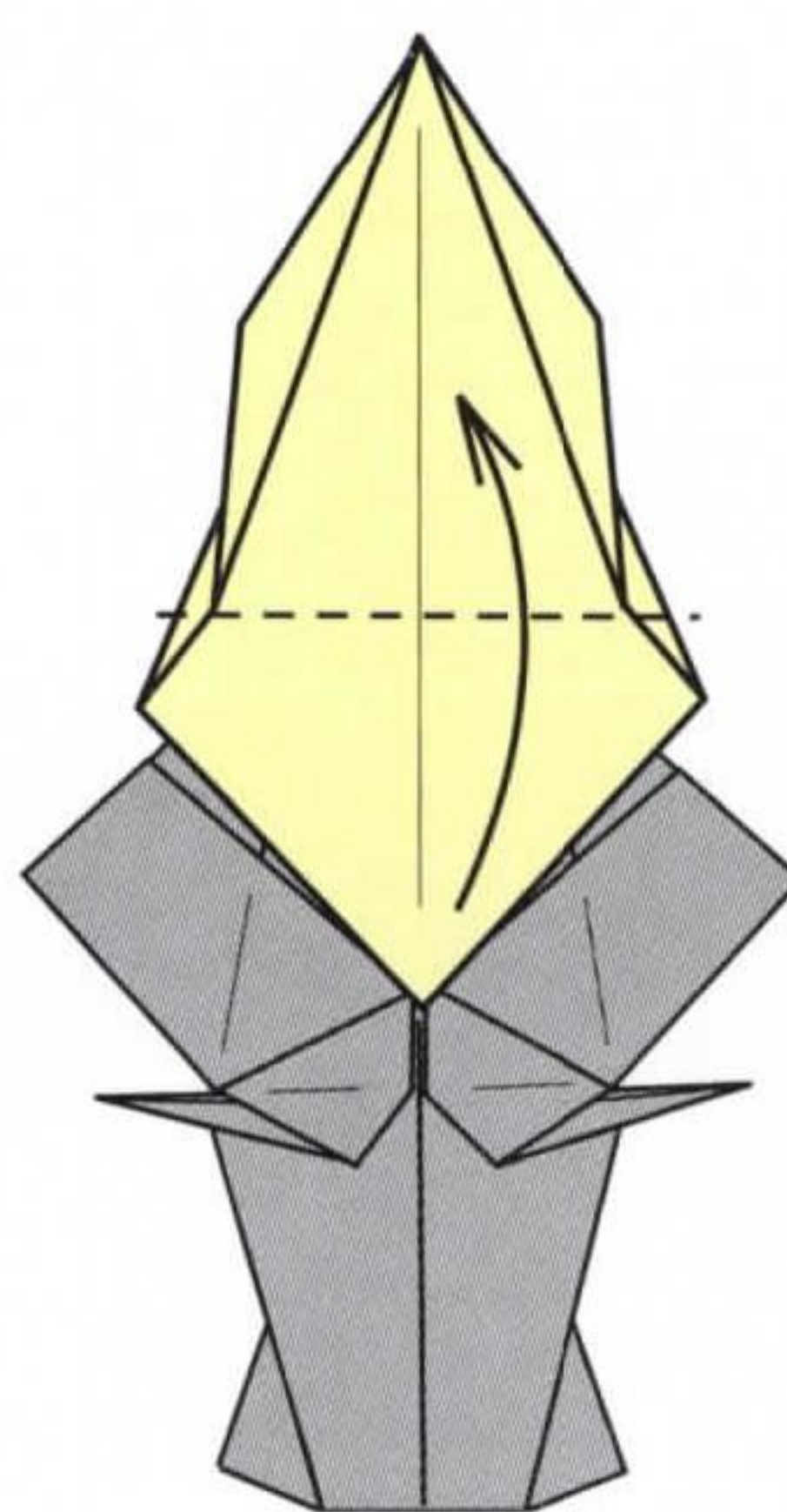
28. Squash-fold the indicated edges.



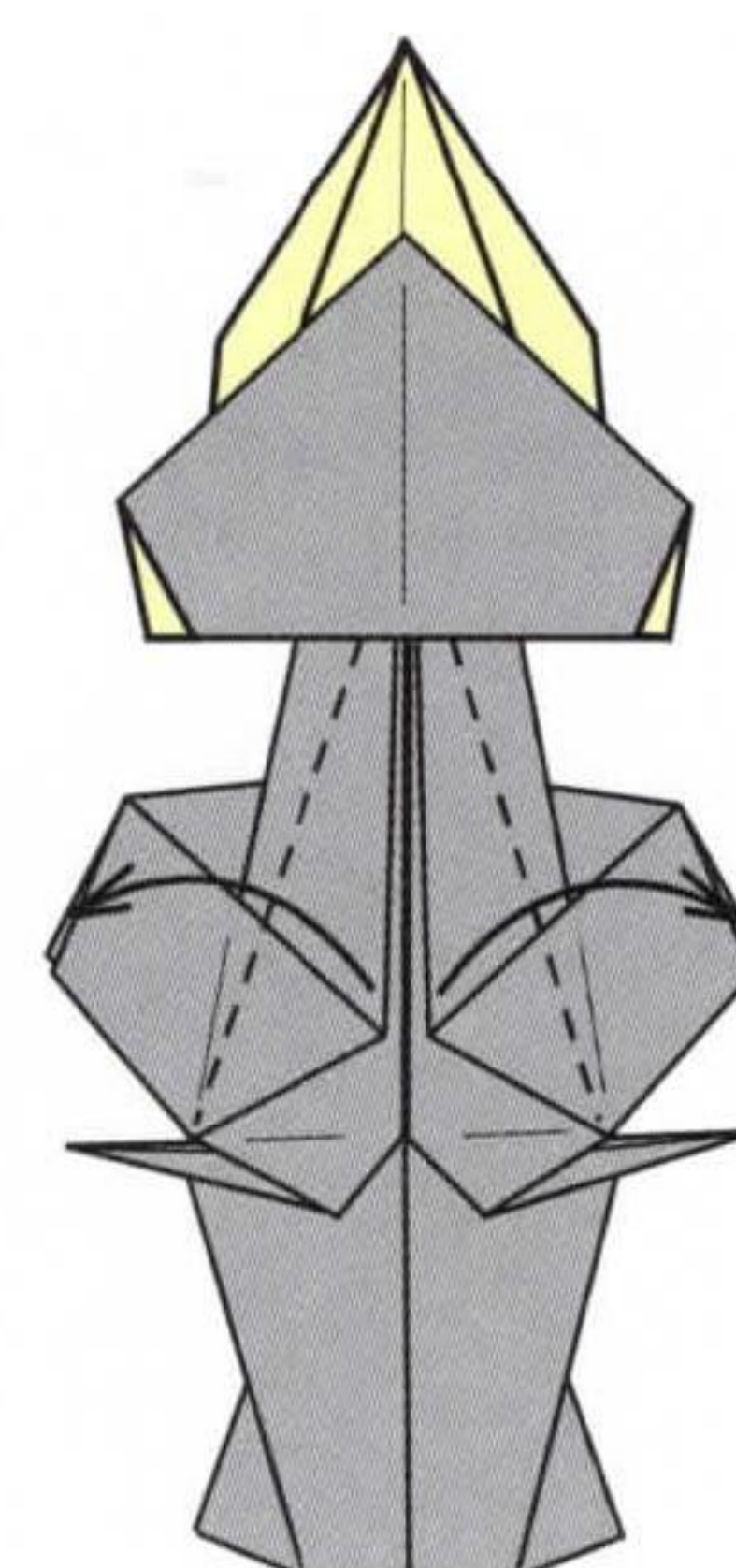
29. Mountain- and valley-fold the long edges of the beak.



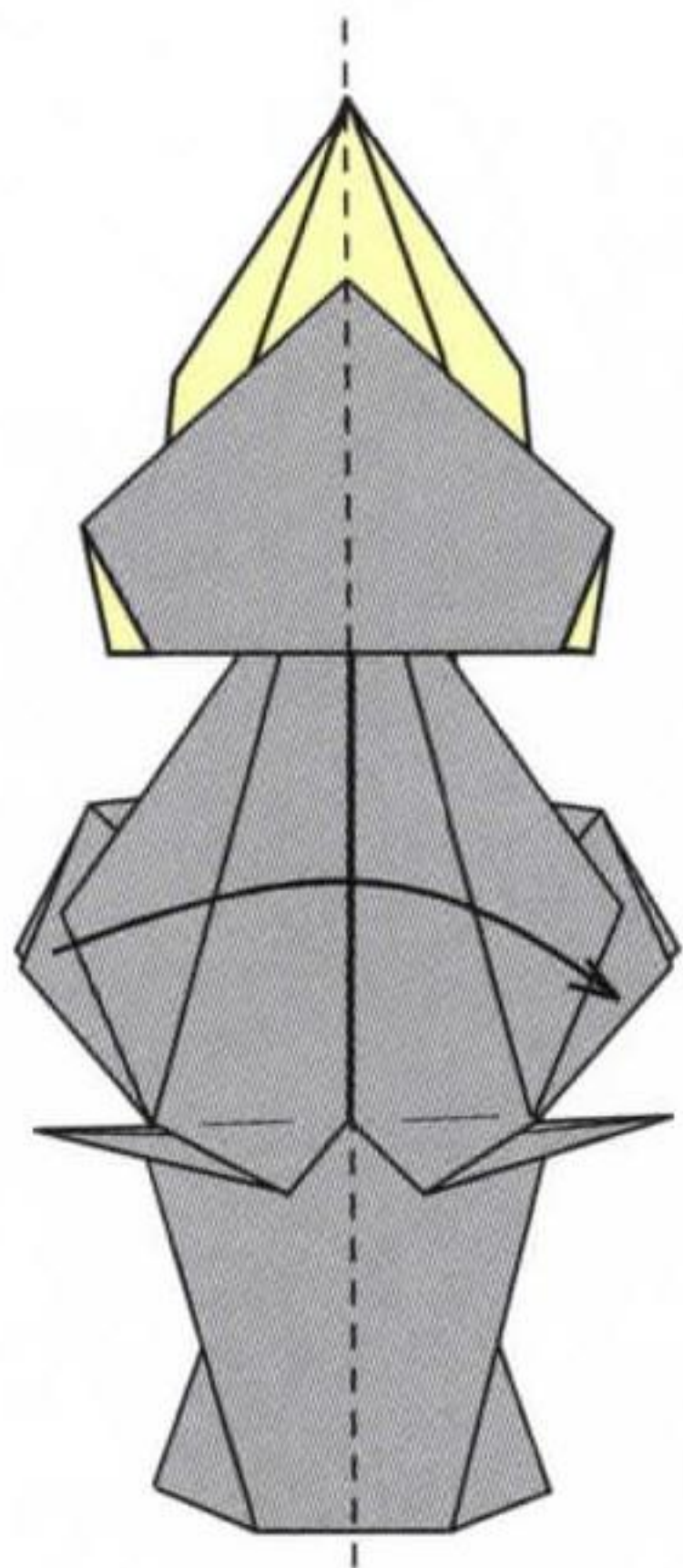
30. Turn the model over, left to right.



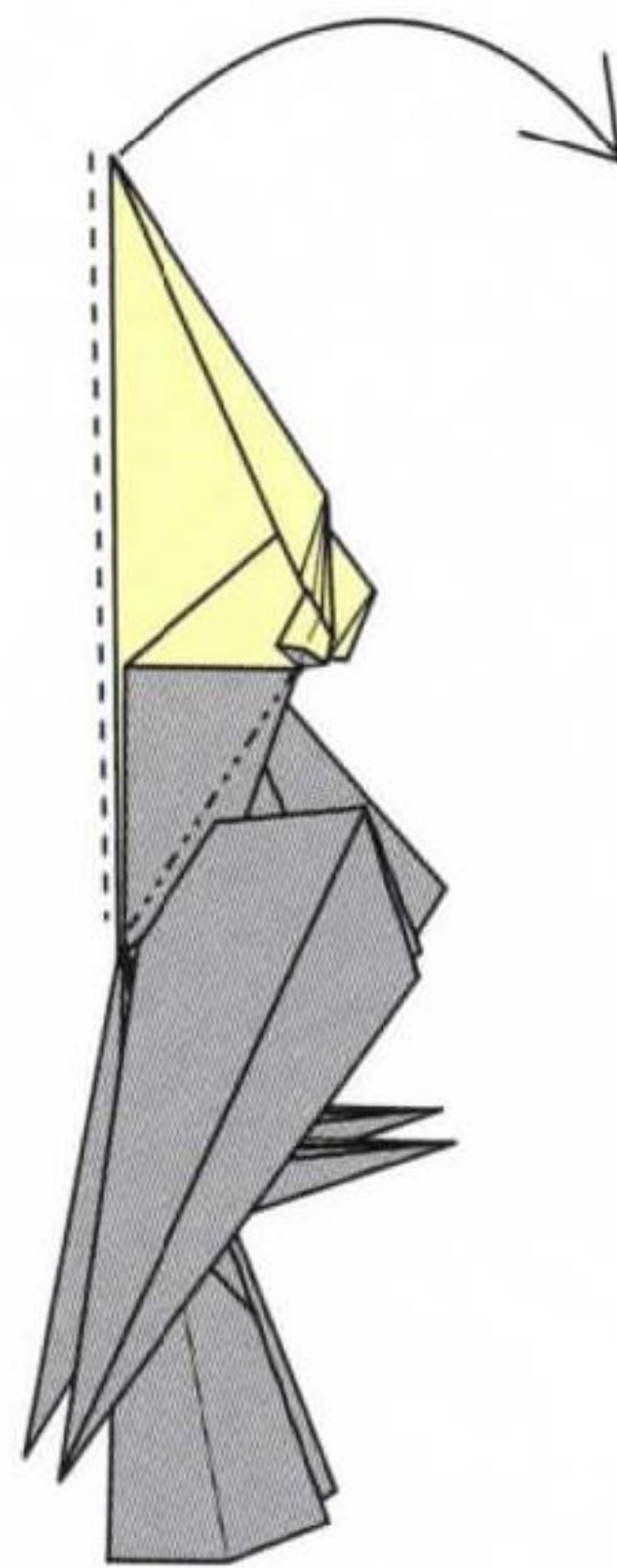
31. Fold up.



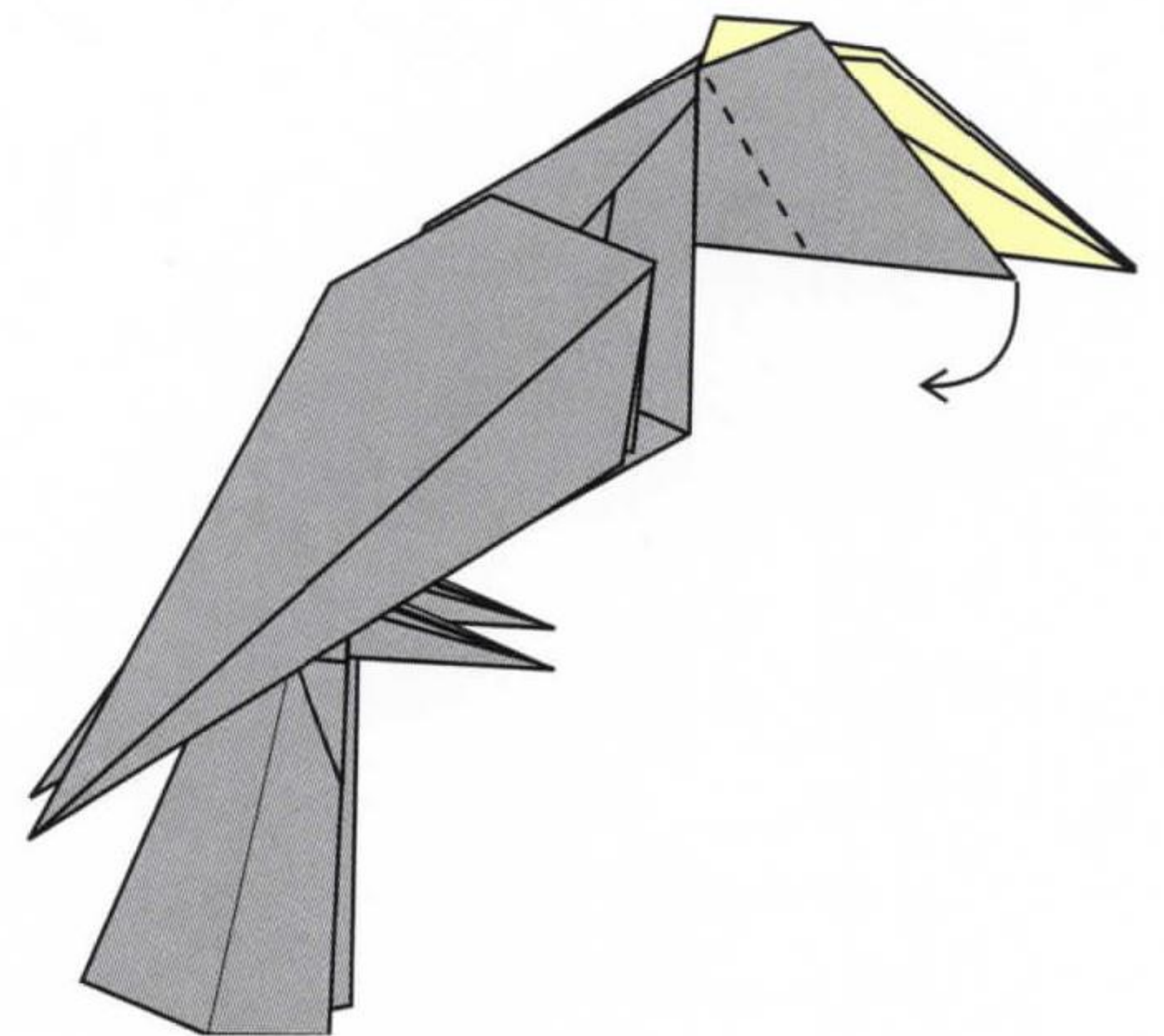
32. Bring out each corner from the center, forming valleys from neck to hips.



33. Valley-fold the model in half vertically.



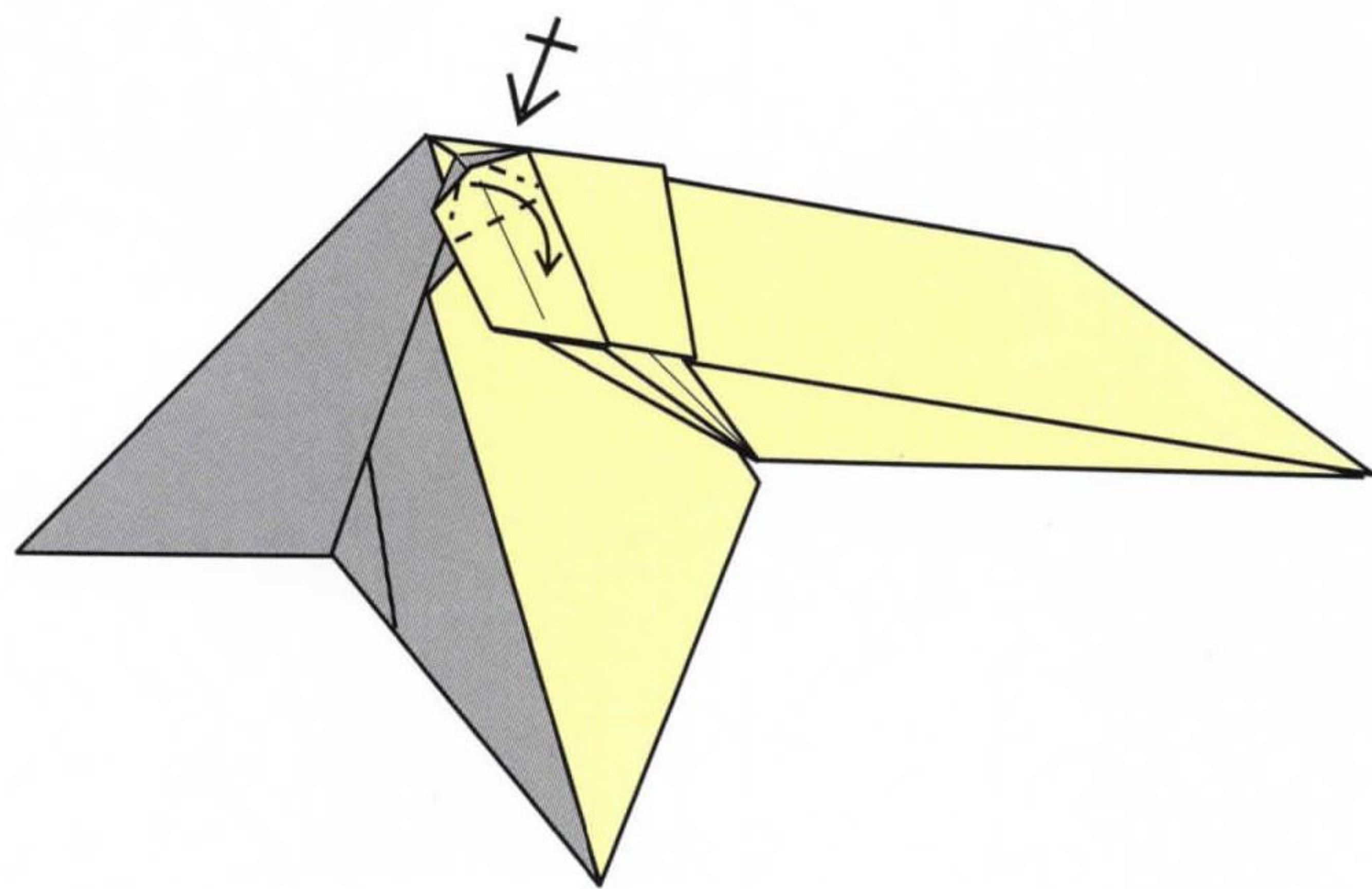
34. Inside-reverse-fold the head.



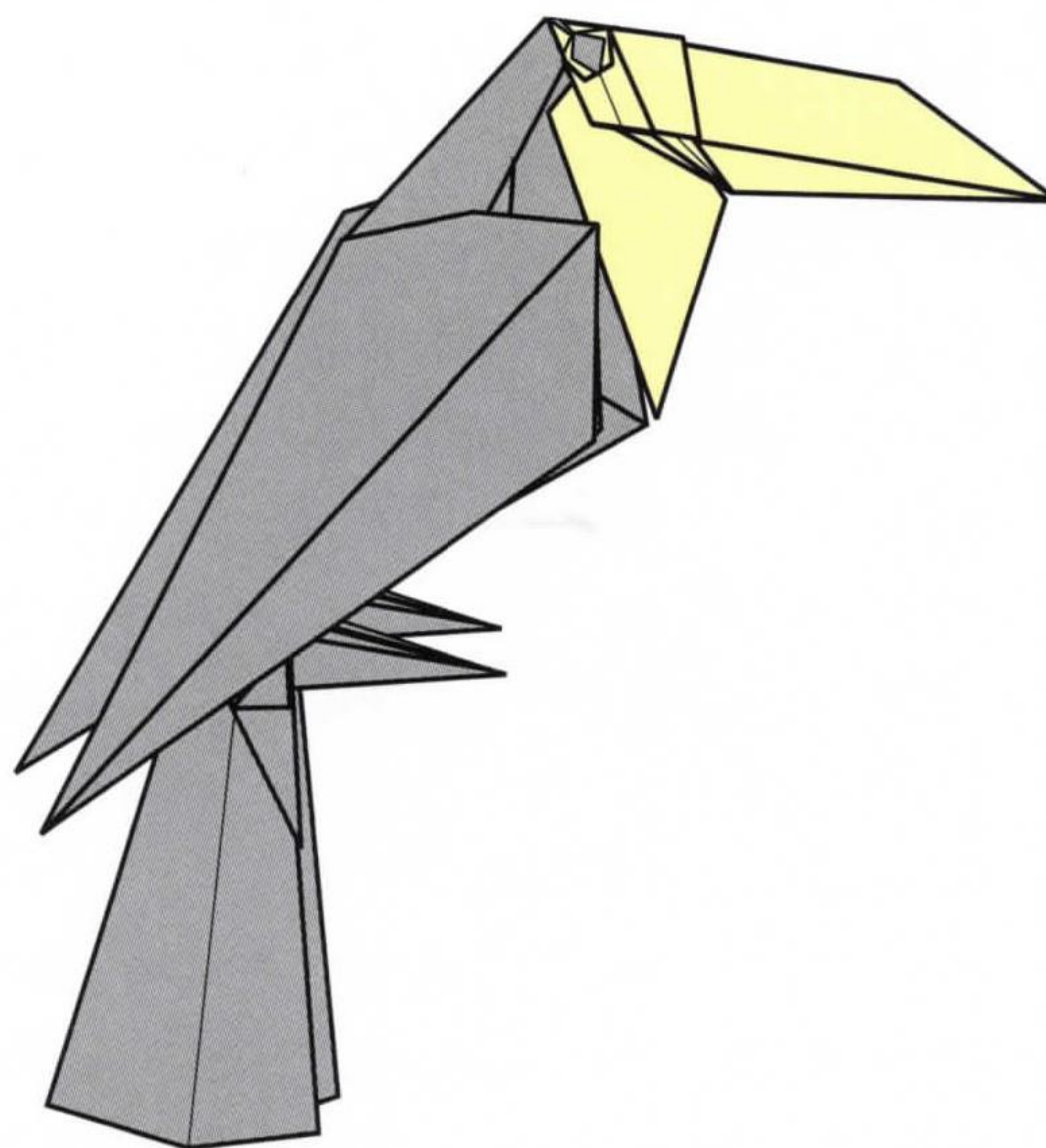
35. Outside-reverse-fold the black layer downward, exposing the yellow bib.



36. Pull to outside-reverse-fold.



37. Open, then squash-fold each eye.



38. The finished Toco Toucan.

frog

Designed by Michael G. LaFosse



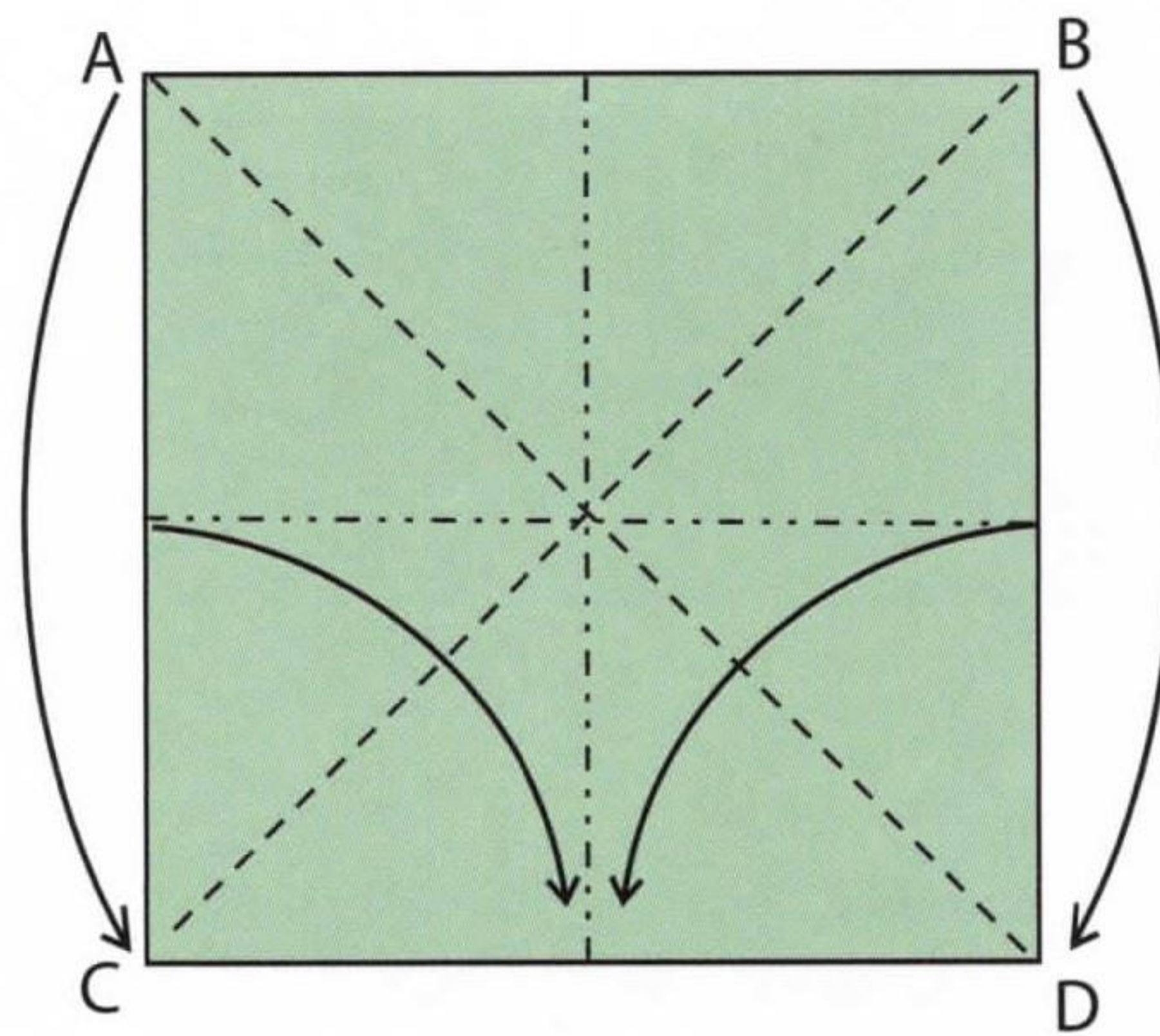
During my high school years, I spent summers with my good friends, the Rossi family, at their camp on Vinton Pond in northern Massachusetts. My friend Paul Rossi and I soaked up the wonders of this idyllic setting and we became students of the creatures in our own backyard. Vinton Pond was home to two of my favorite origami subjects, the turtle and the frog. These little frogs hid in the mud along the banks of the pond. The mud sparkled with mica, so when I created the handmade paper for this project I added mica to the paper. The resulting origami frogs closely resemble the real frogs as I saw them.

This design requires subtle sculpting along the back and eyes to make it appear particularly athletic—lean and alert—ready to launch out of your slippery grasp with a single burst of power from hyper-strong hind legs. This model best represents why I coined the term “Origamido” many years ago. It was one of the first designs that demanded not only a special type of paper—color and sparkle—but folding characteristics that allowed and preserved sculptural refinement. This refinement, made possible through a special design and a special paper, embodies the Japanese suffix “do,” meaning “the pursuit,” “the way” or “the life.” This was also around the time I had been studying Tae Kwon Do, so I was mindful of directed, long-term dedication as a way to realize a specific goal.

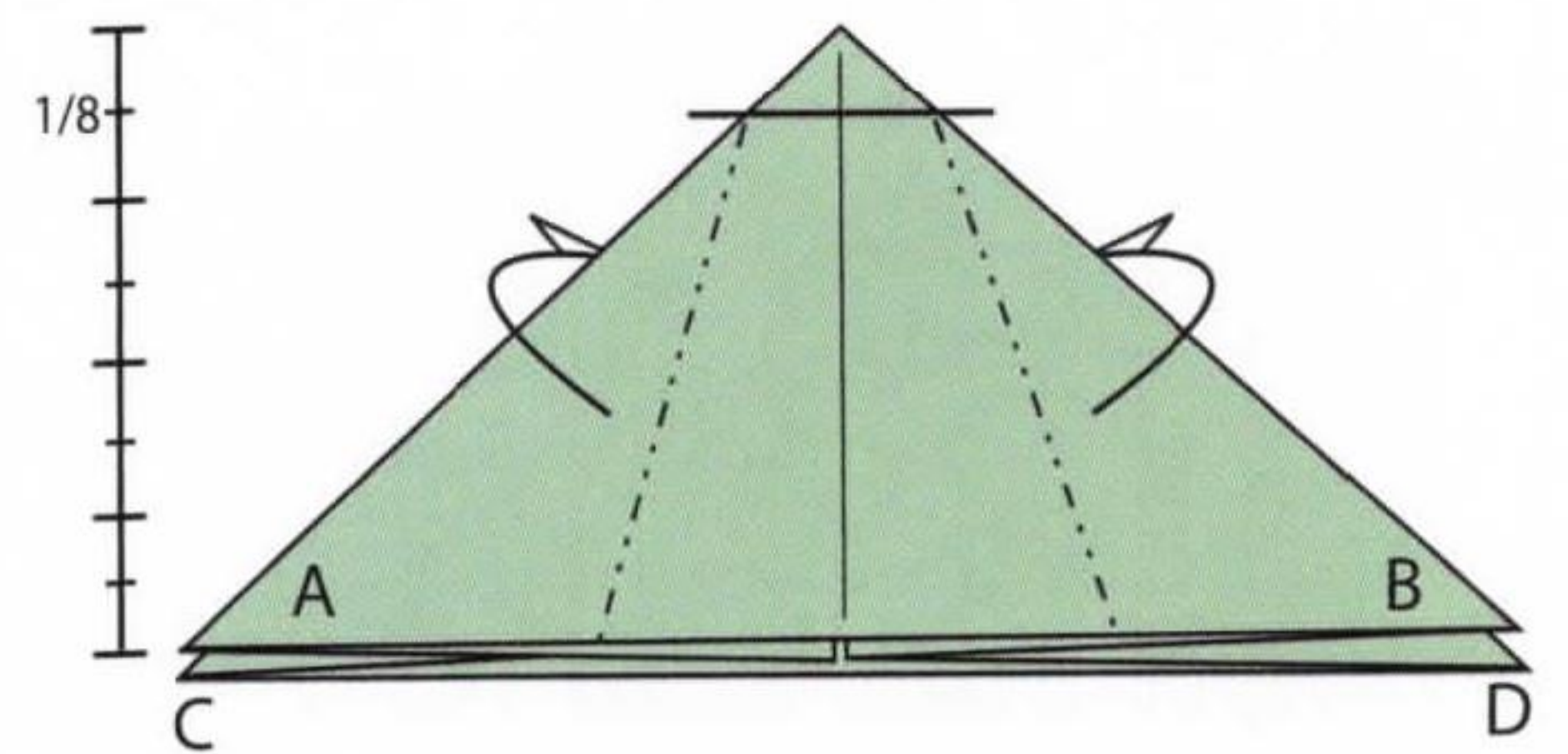
PAPER SUGGESTIONS

This origami frog should be wet-folded. Try papers that are made with cotton or abaca fiber blends. If desired, surface-finish your paper with green iridescent acrylic paints for a wet look. Colored foil-backed origami paper will work well for your first attempts; the foil can be shaped in a similar way to wet-folding. The larger standard size of this foil origami paper is 24 cm square (approximately $9\frac{3}{4}$ inches square). This is a good size to practice with.

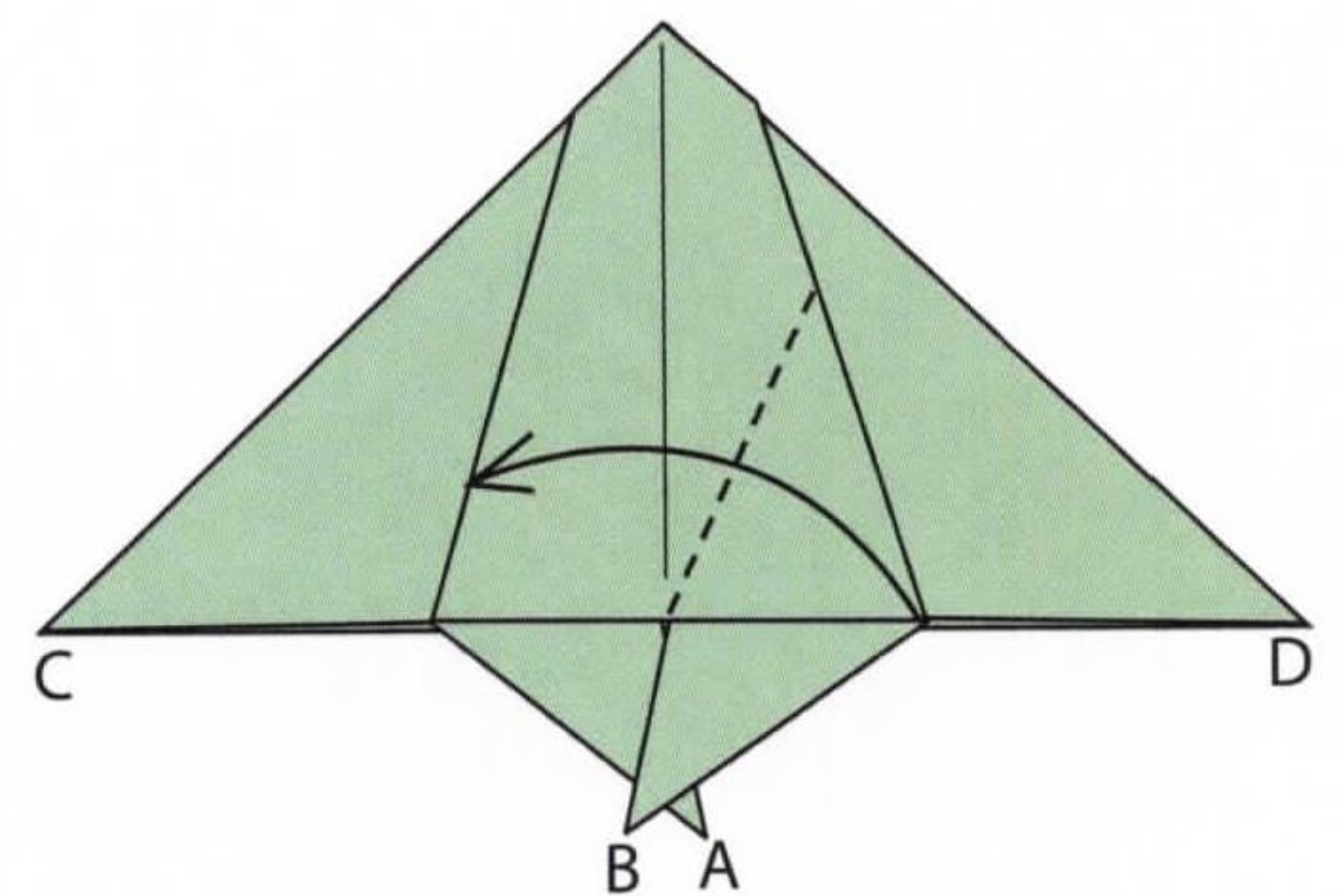
I use paper that I make specially for this model. Follow my recipe for "General Purpose Pulp" (page 123), then color the pulp to meet your desired frog's color. I use the following color recipe for my popular "Frog Paper." Using the pigment and retention agent coloring system, color the pulp a very dark green, almost black. For each pound dry weight of pulp, add 2–3 ounces (approximately 57–85 grams) by weight of iridescent green mica pigment. The paper will exhibit a totally convincing skin for your frog! Cut the paper to 8 inches square (approximately 20 cm) for a 3–4 inch frog.



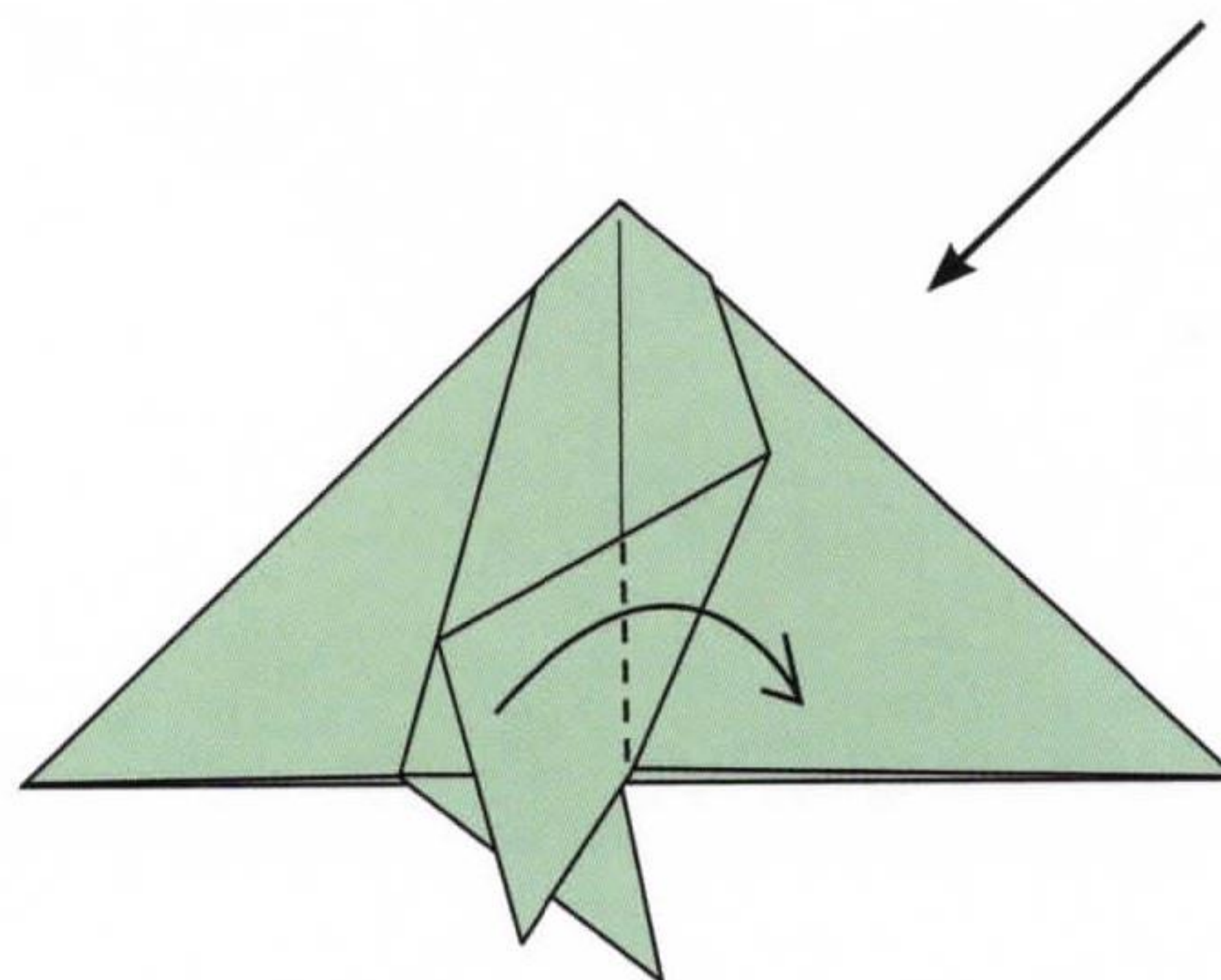
1. Valley-fold, corner to corner, both ways. Mountain-fold, edge to edge, both ways. Fold in the middle of the left and right sides as you fold the corners in half, bringing them together at the bottom.



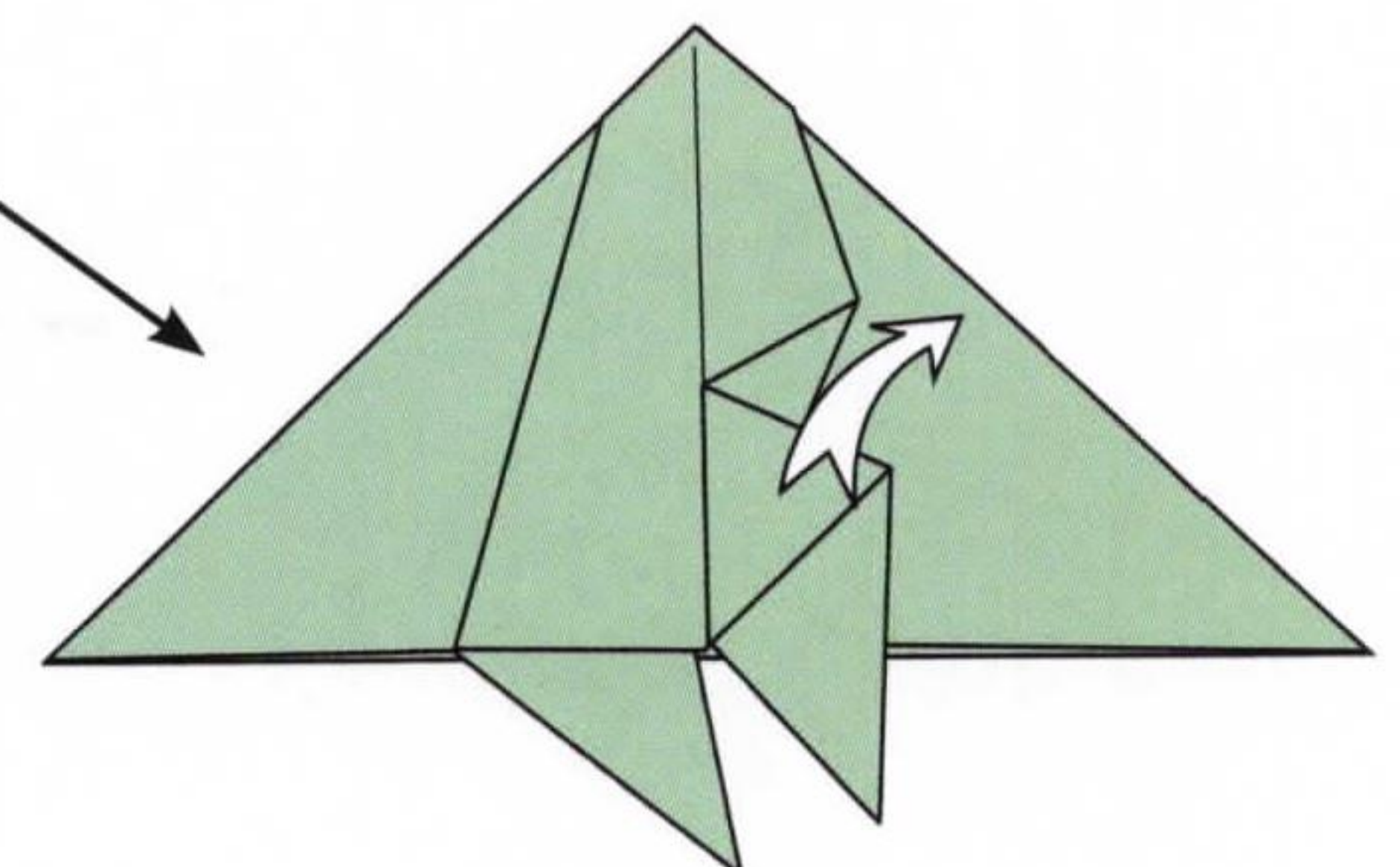
2. Mountain-fold corners A and B behind. The creases should stop at the outer edge of each side at a level one-eighth from the top. The folded edges of A and B should cross at the middle of the bottom.



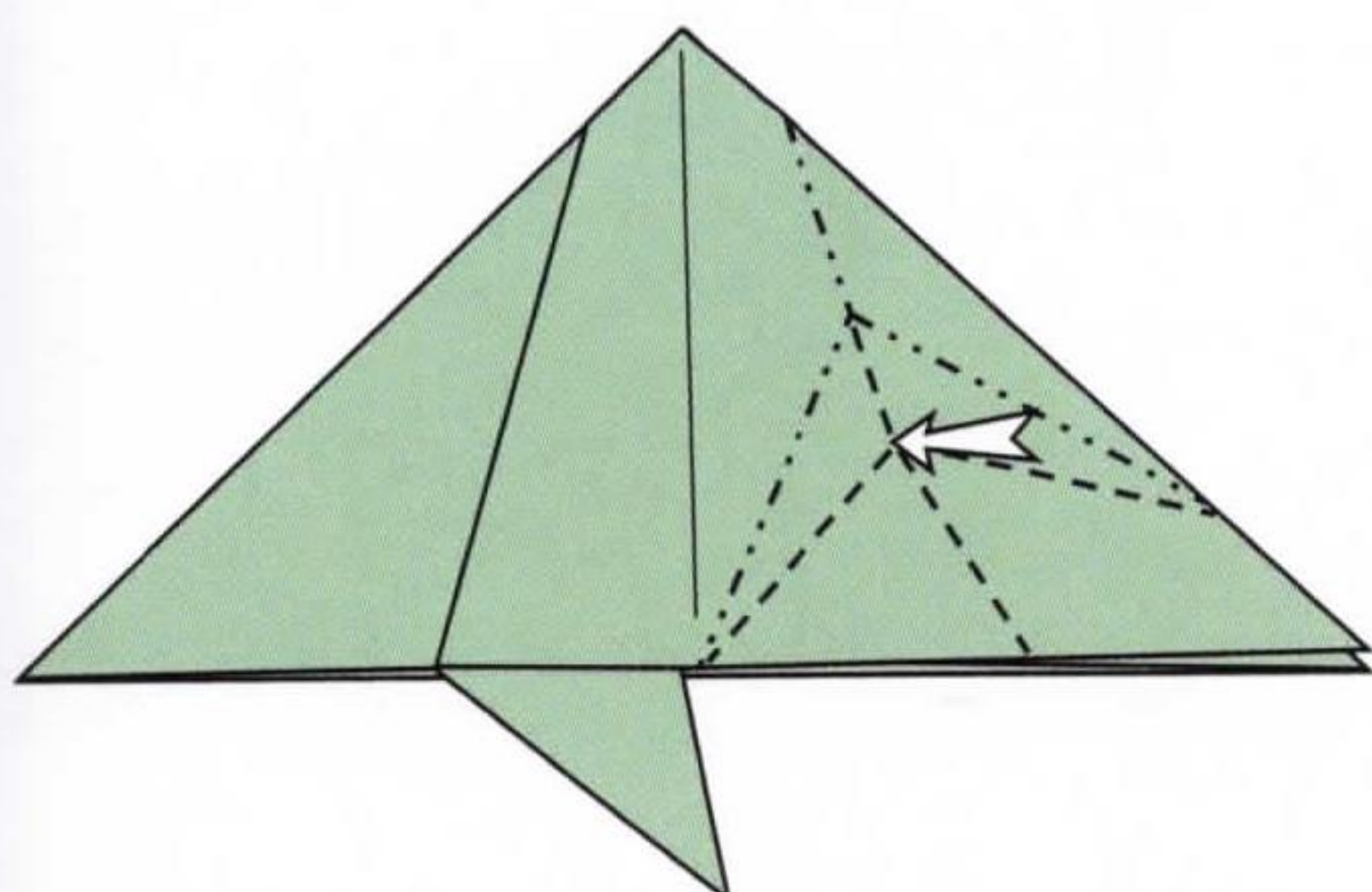
3. Valley-fold to the left, making the corner touch the folded edge while the crease hits the middle of the bottom.



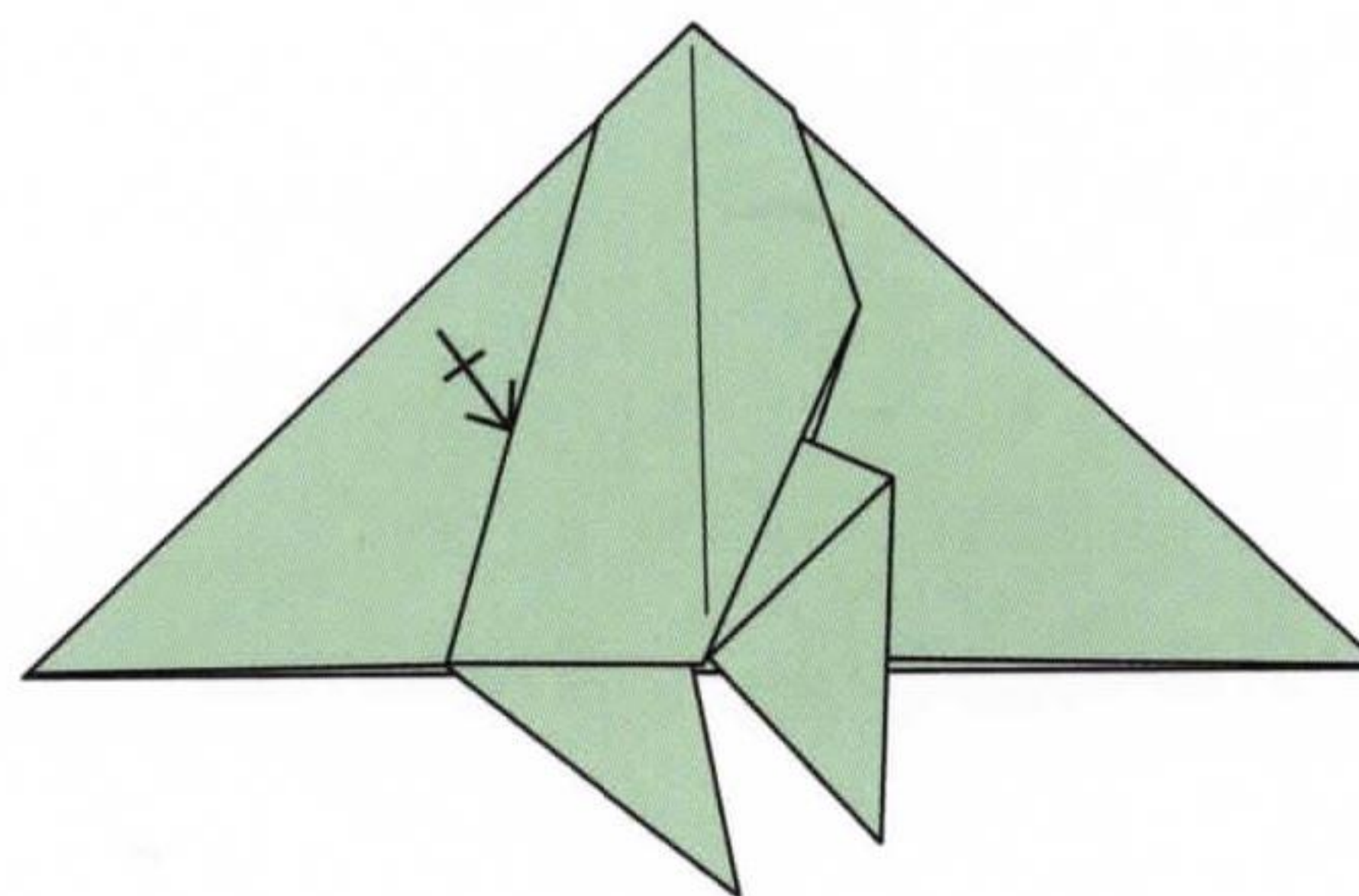
4. Valley-fold to the right. The fold should align with the center crease.



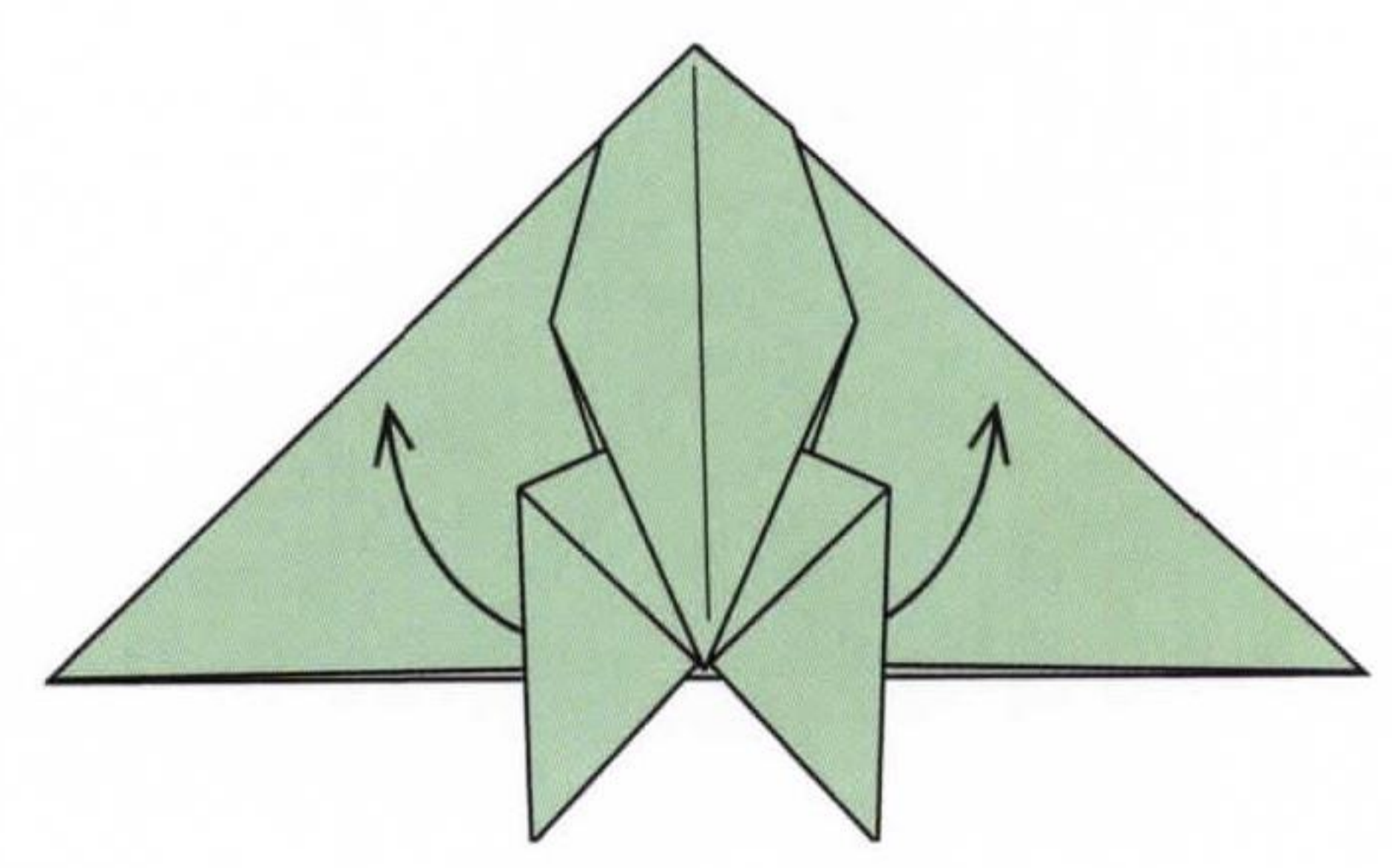
5. Unfold.



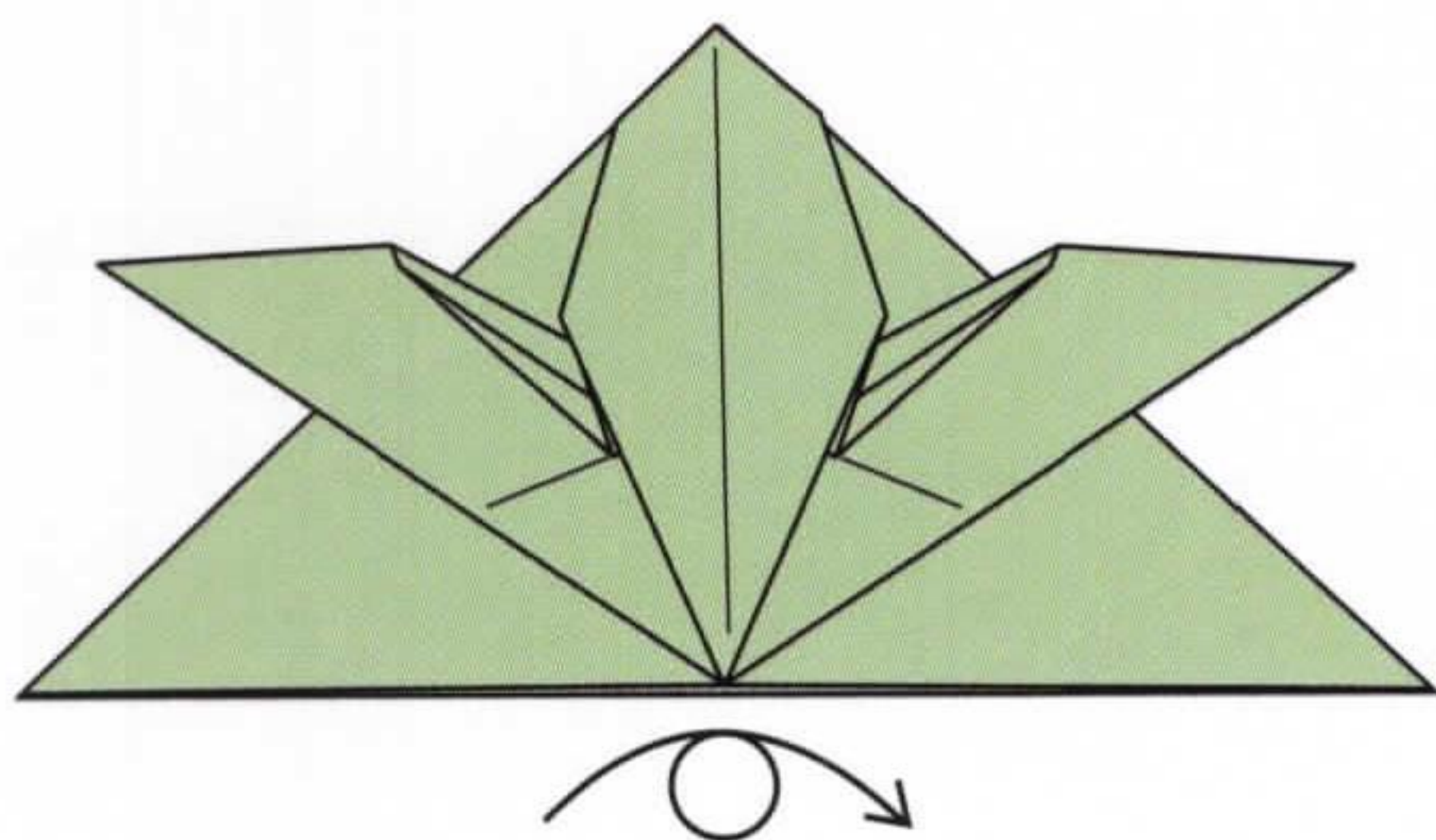
6. Use the crease pattern to mountain- and valley-fold the corner into shape. See the next step for help.



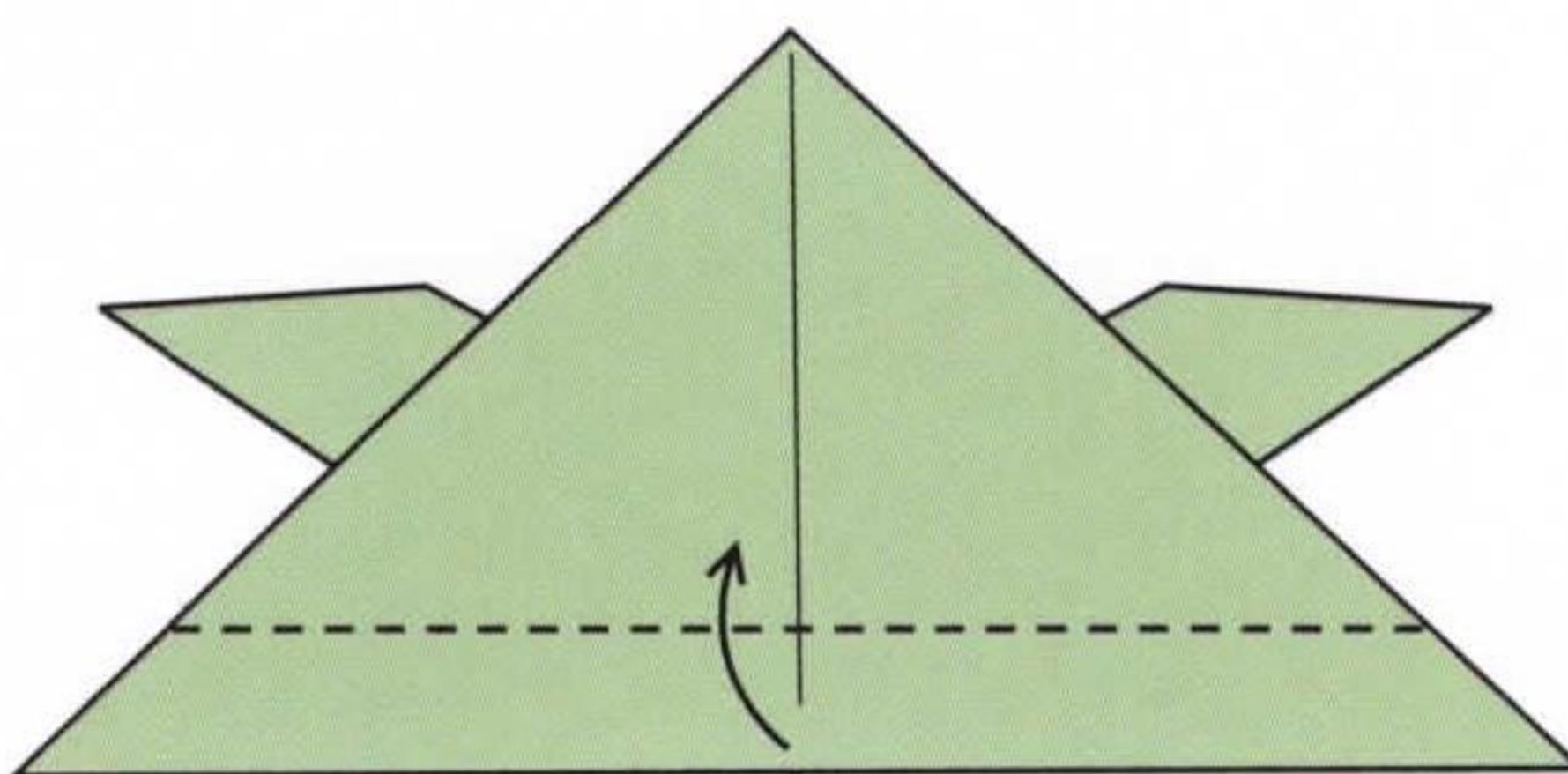
7. Repeat steps 3 through 6 on the other side.



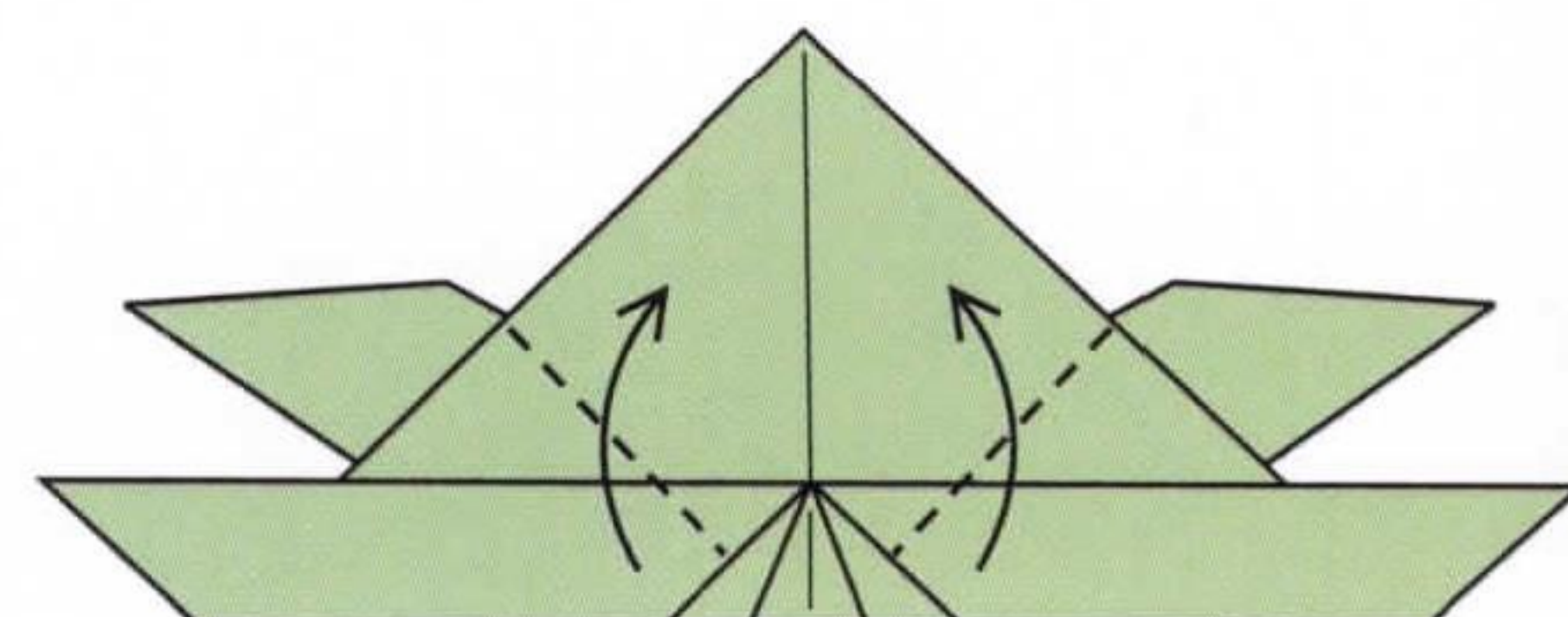
8. Fold up the bottom corner on each side.



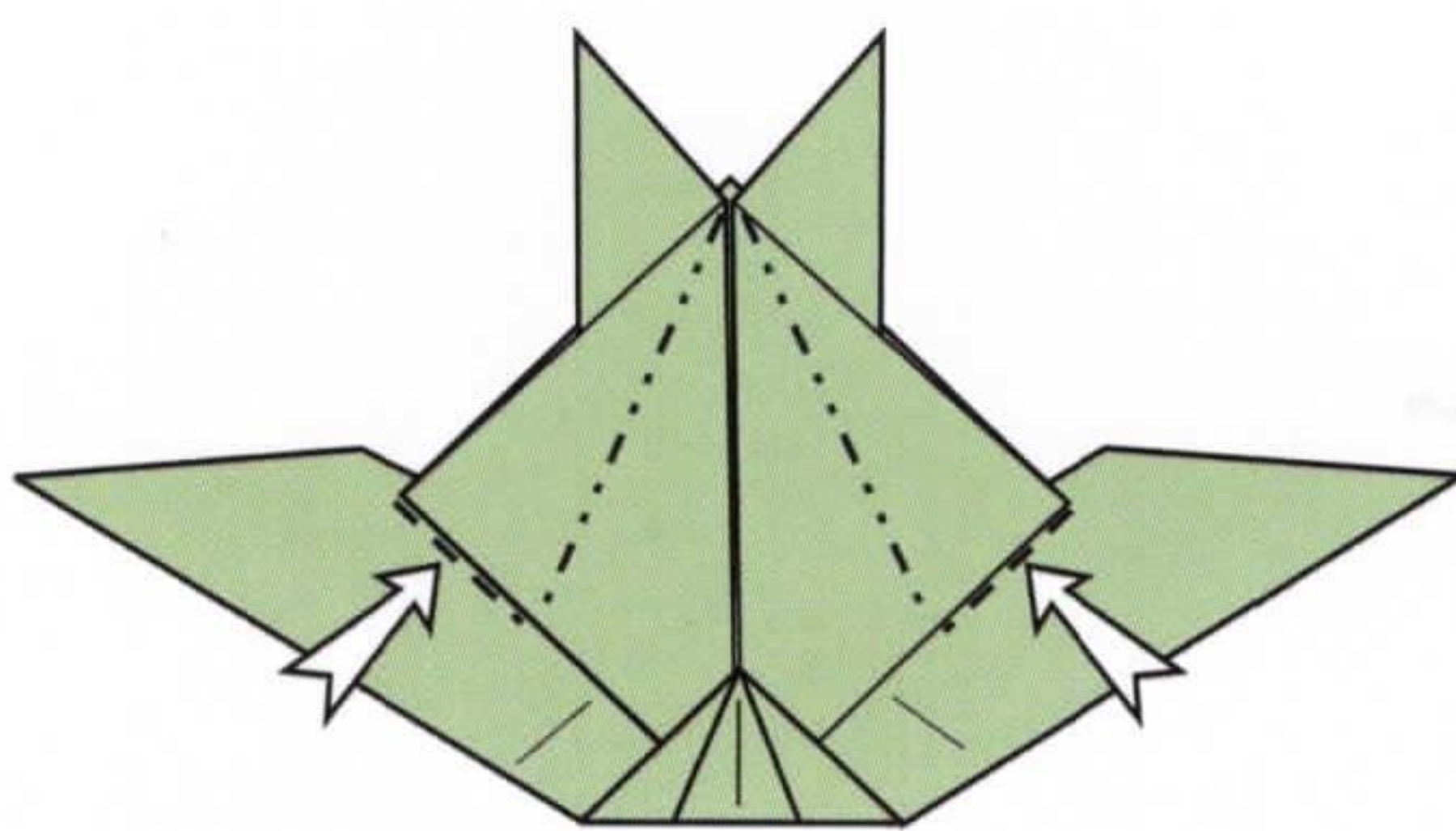
9. Turn over, left to right.



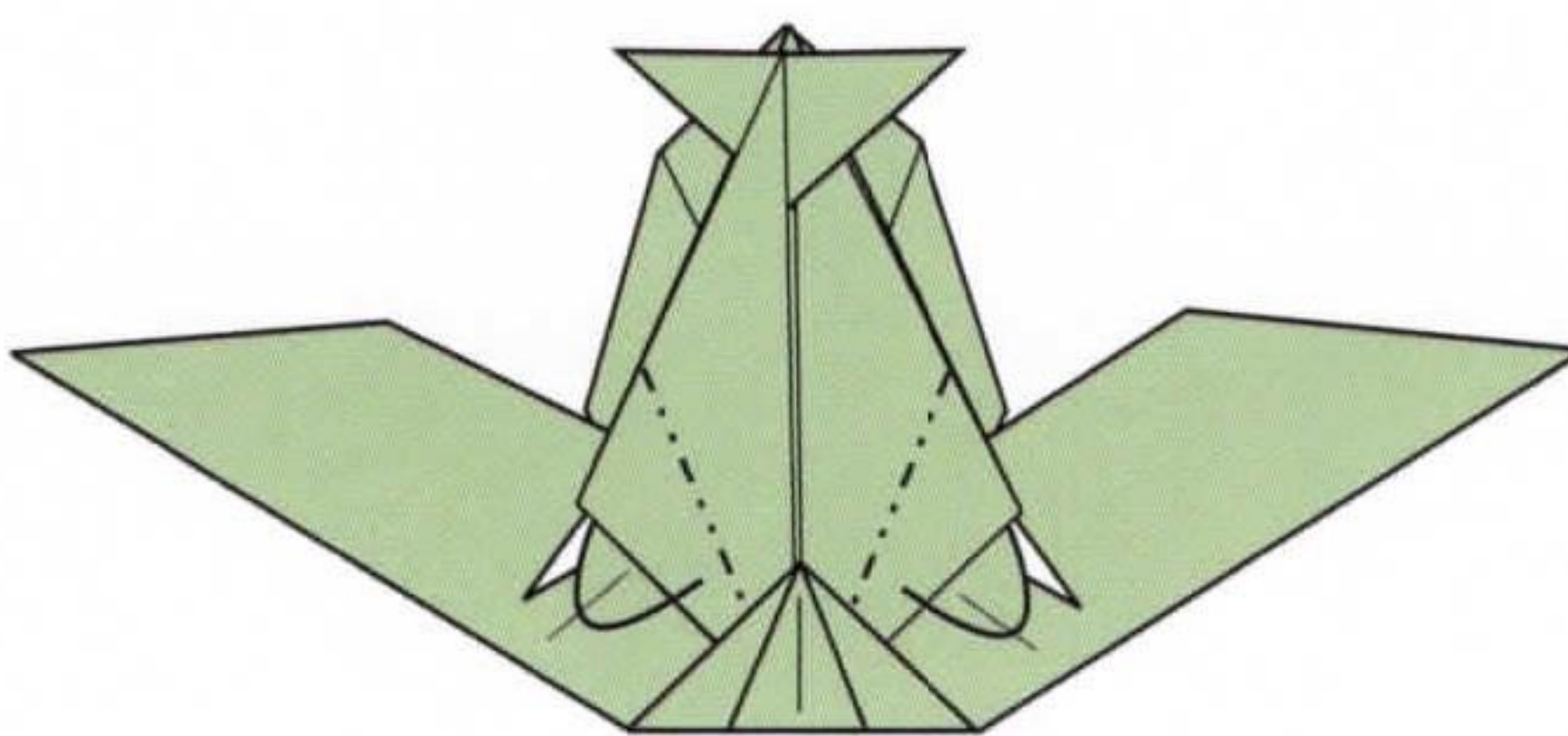
10. Fold the bottom edge up. There is no exact placement for this, but you should not fold much higher than one-fifth of the vertical span.



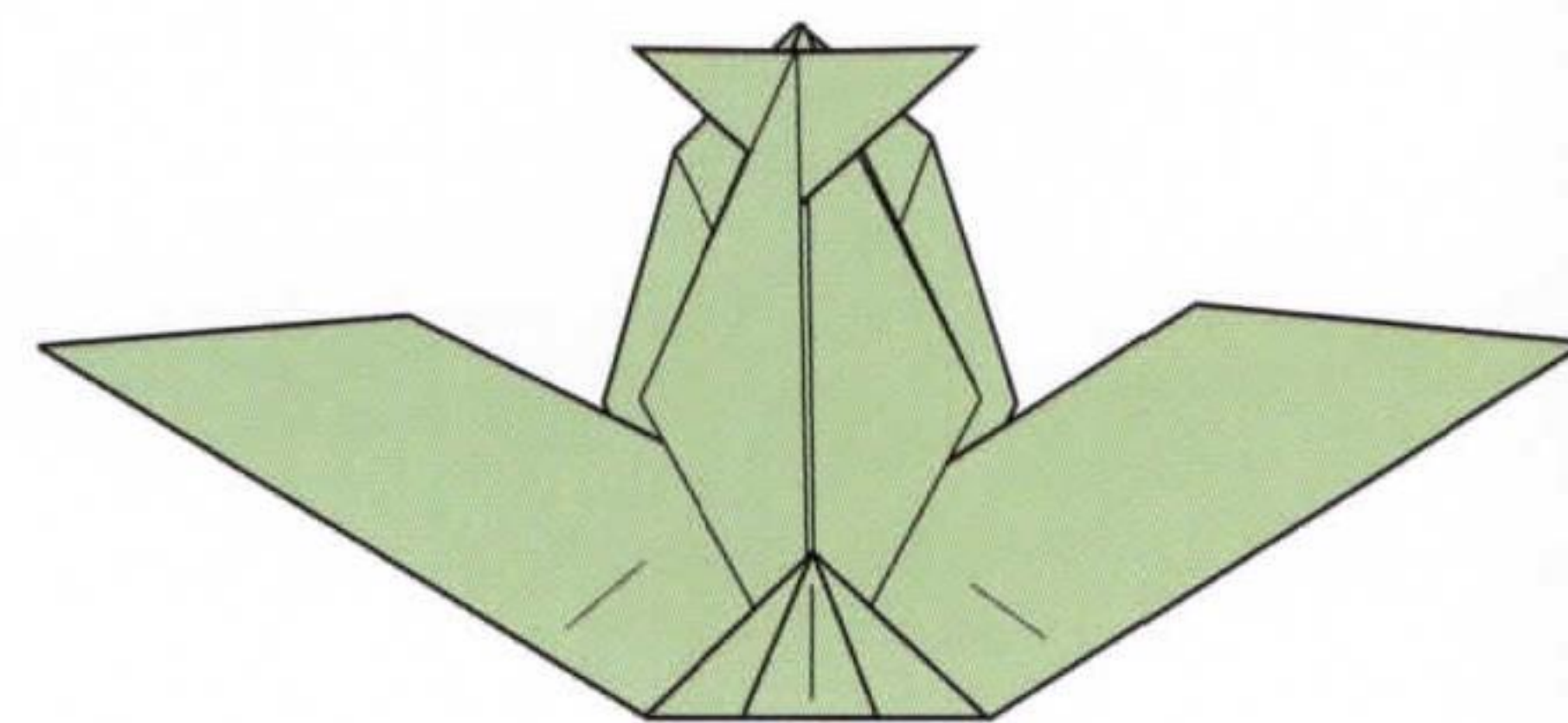
11. Valley-fold the left and right corners up so that the edges meet in the middle.



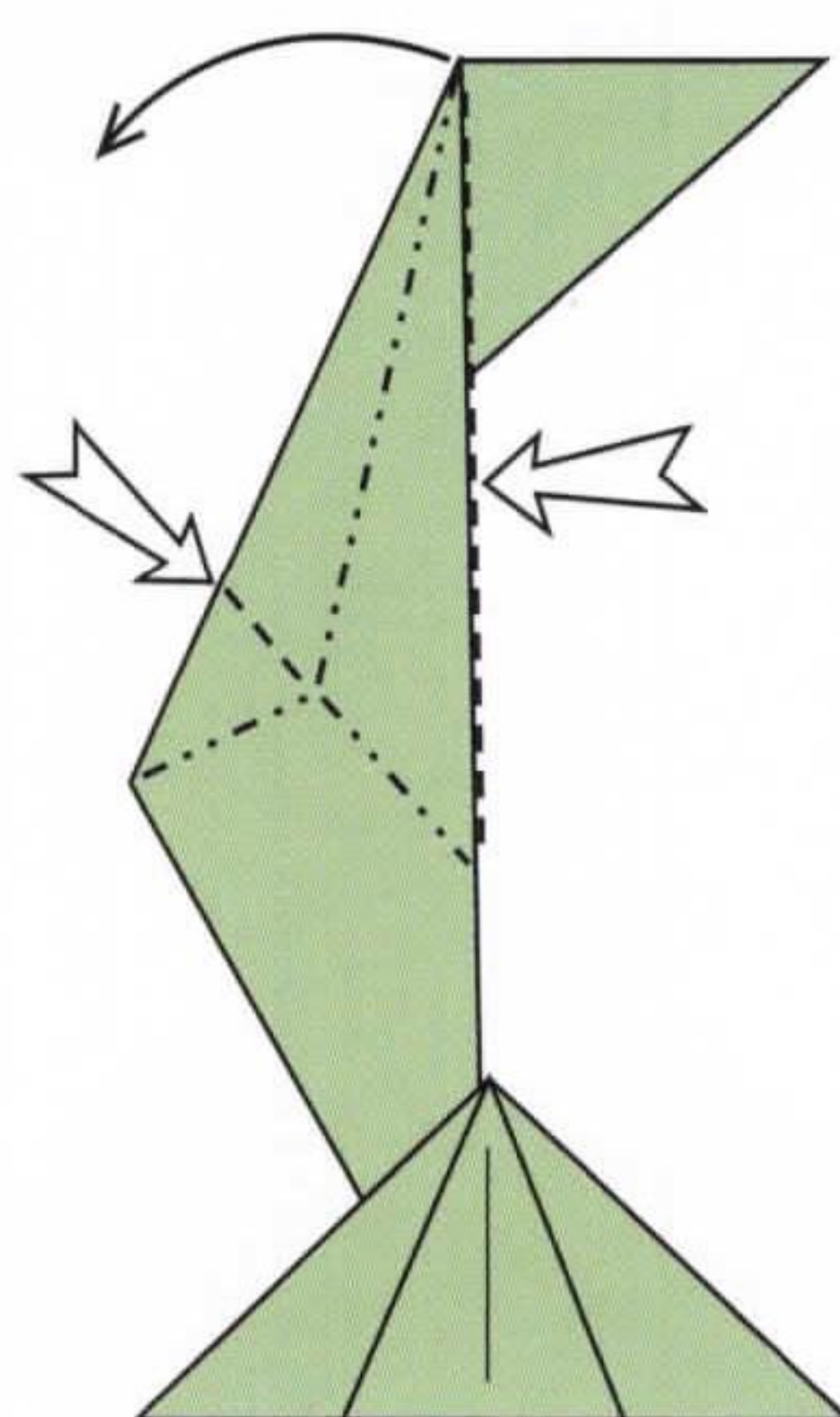
12. Inside-reverse-fold the left and right inside corners.



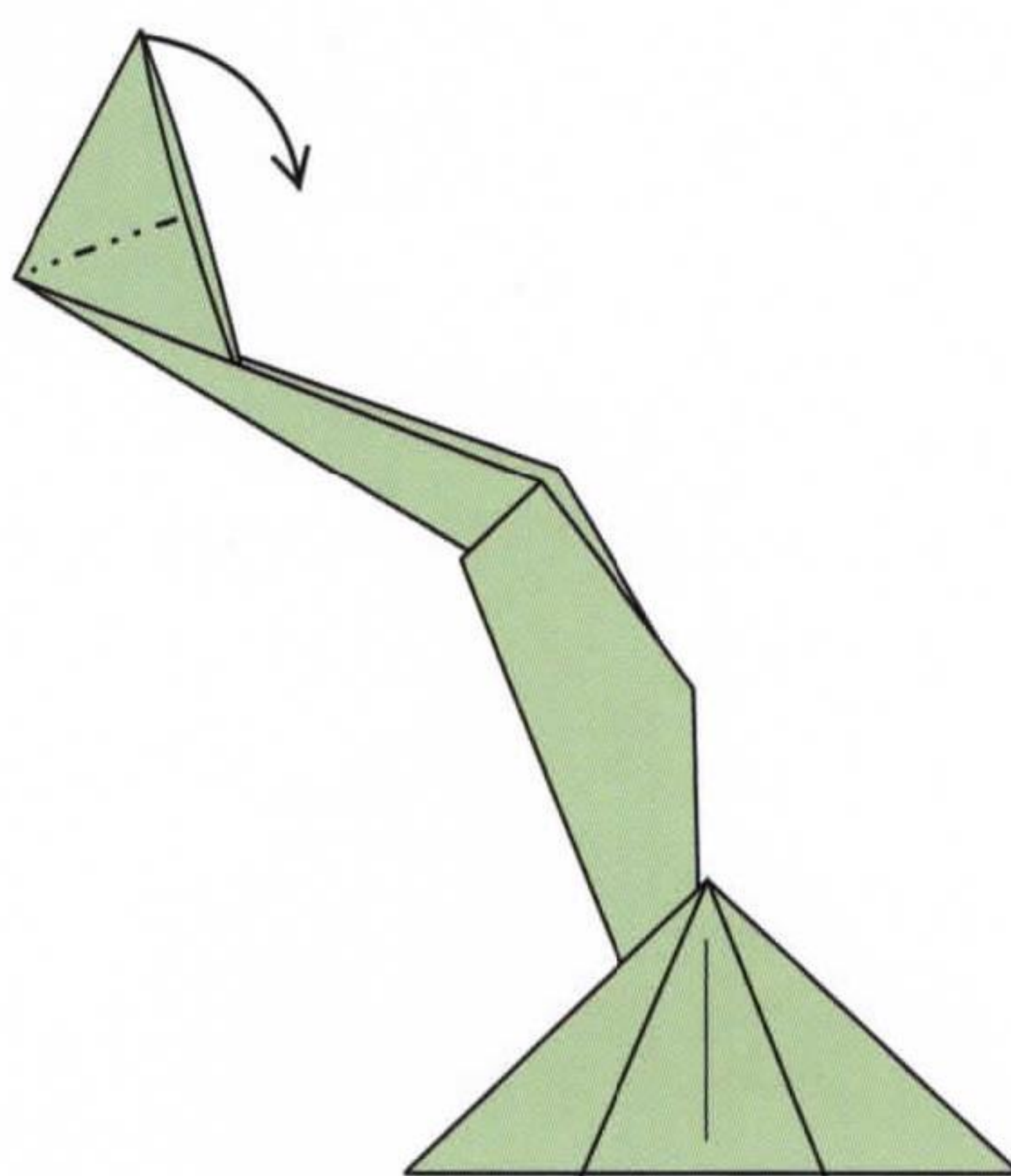
13. Mountain-fold behind.



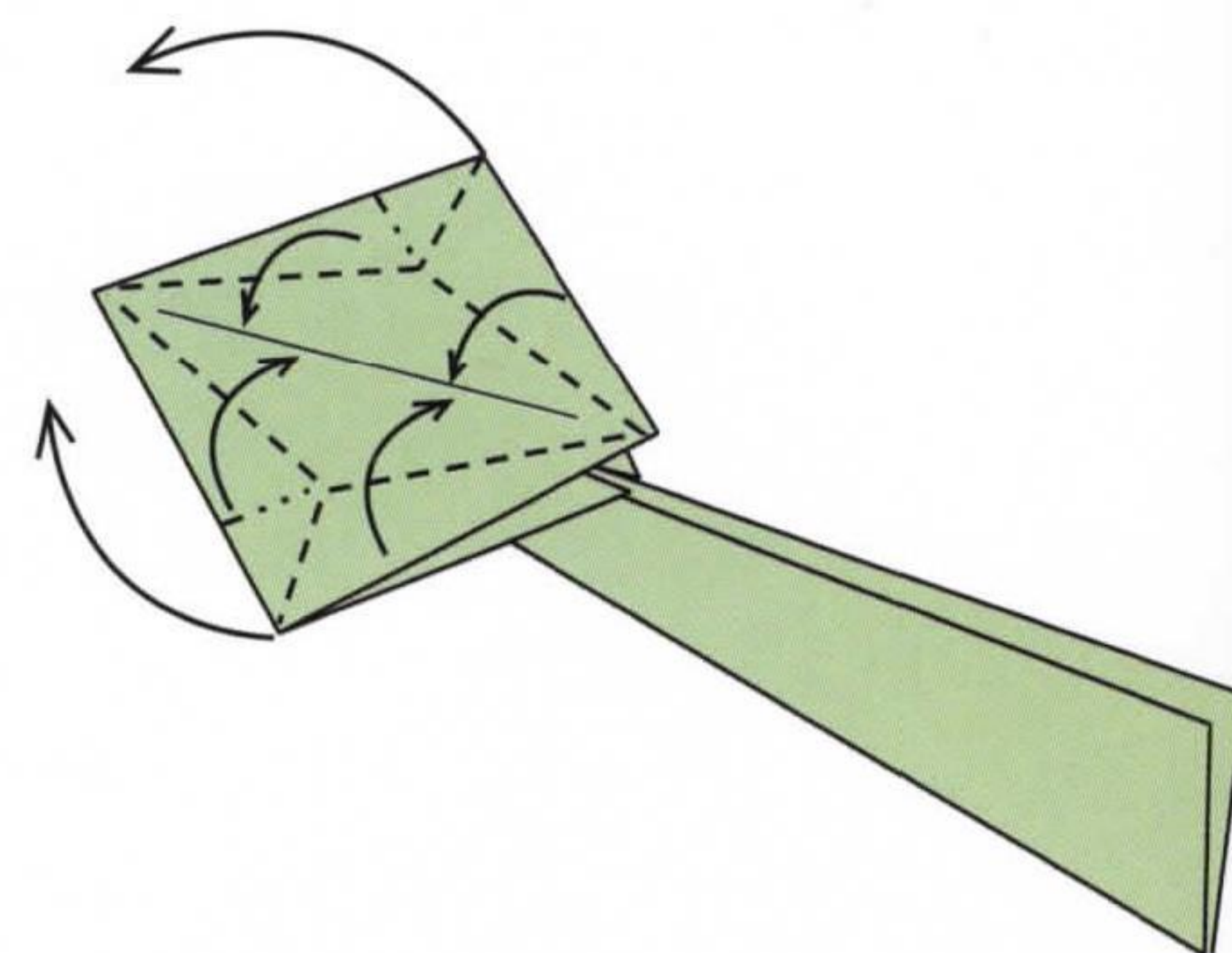
14. Your paper will look like this.



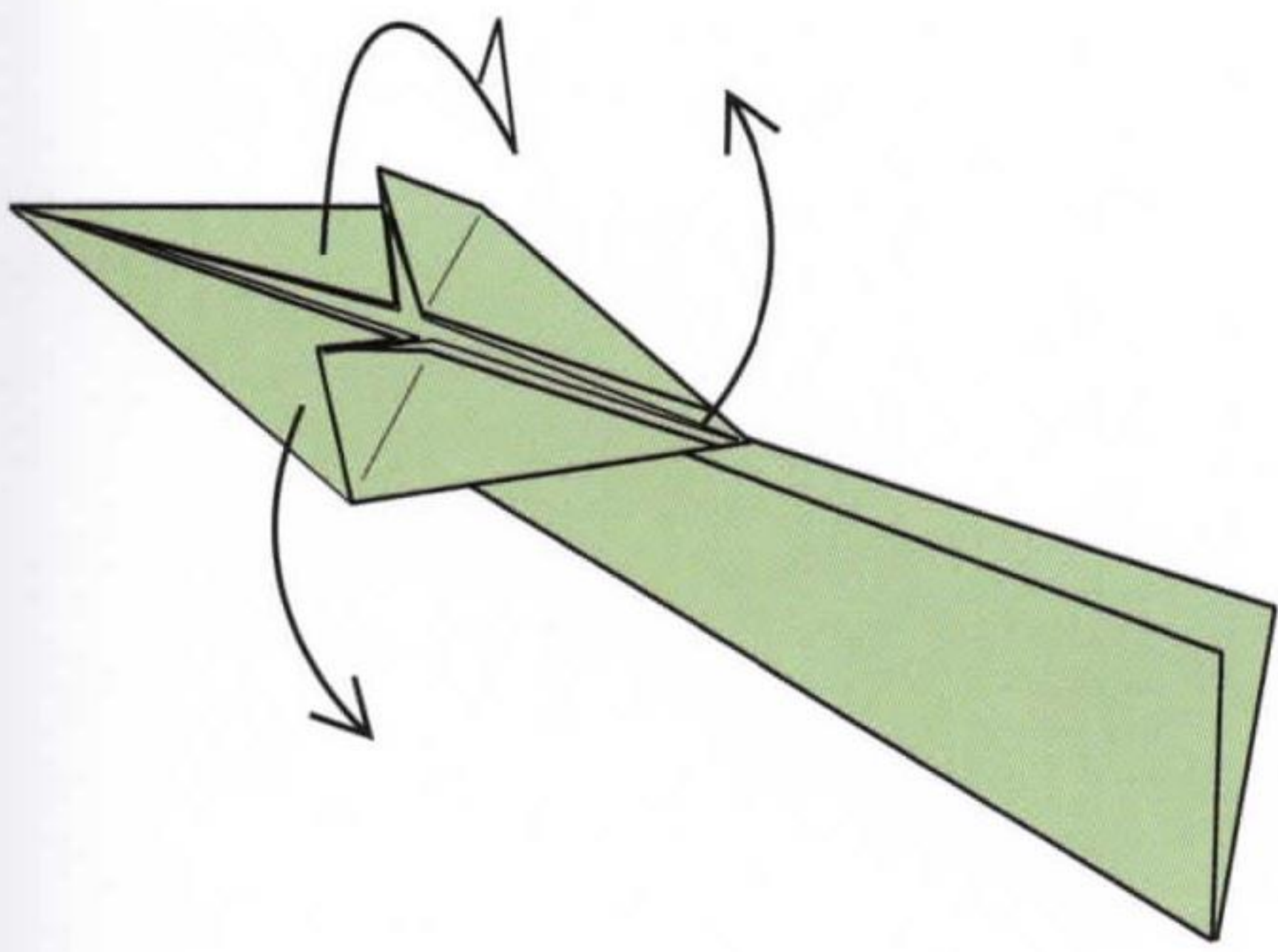
15. Forearm detail. Squeeze the left and right sides of the arm to flatten, then fold in half along the inside edge (right side of figure) while bending outward. Repeat with the other arm in the opposite direction.



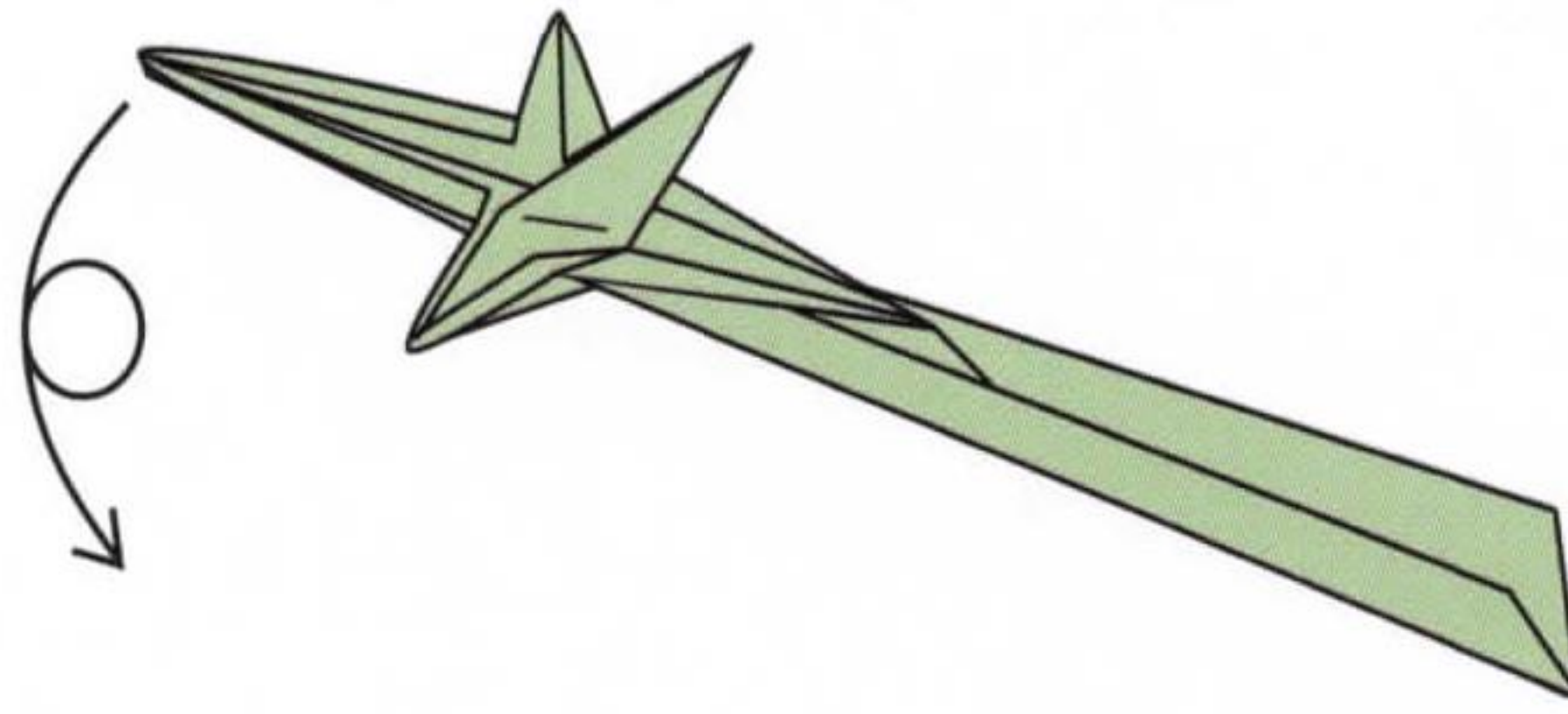
16. Squash-fold the paper for the "hand."



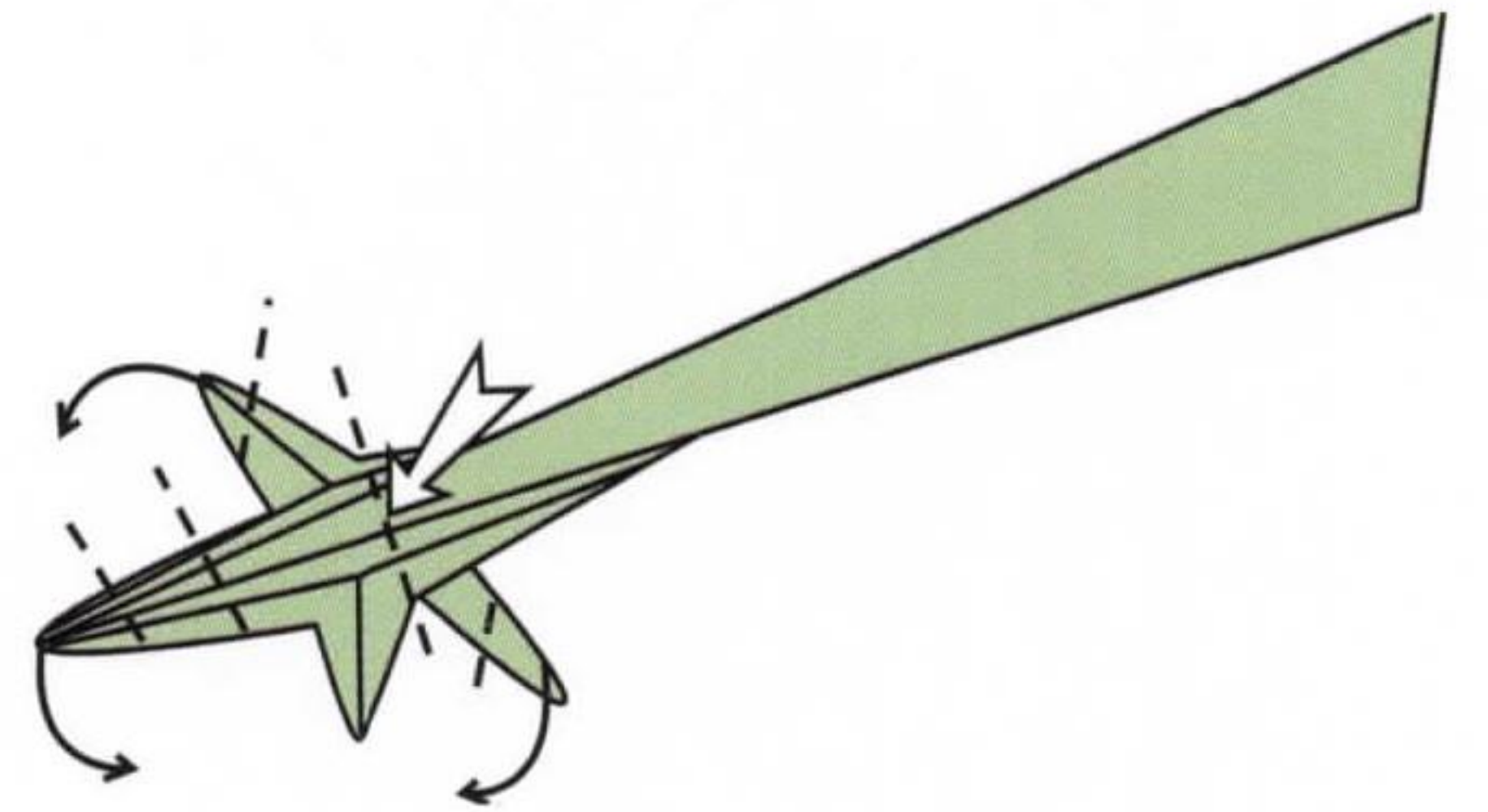
17. Fold the two square side corners in half and upward while folding all four edges to the centerline.



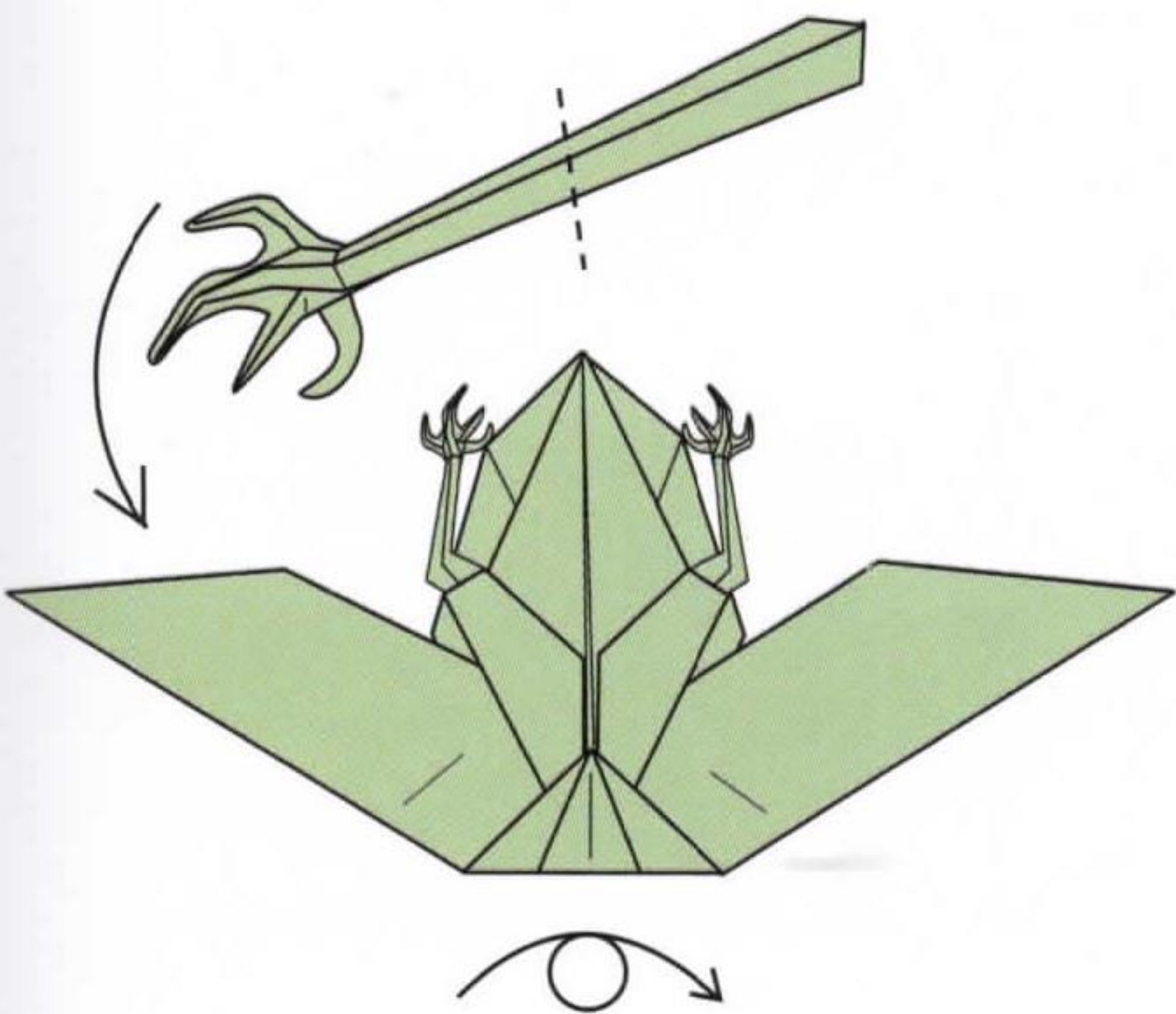
18. Fold each half down along the arm.
Pull the inside point free.



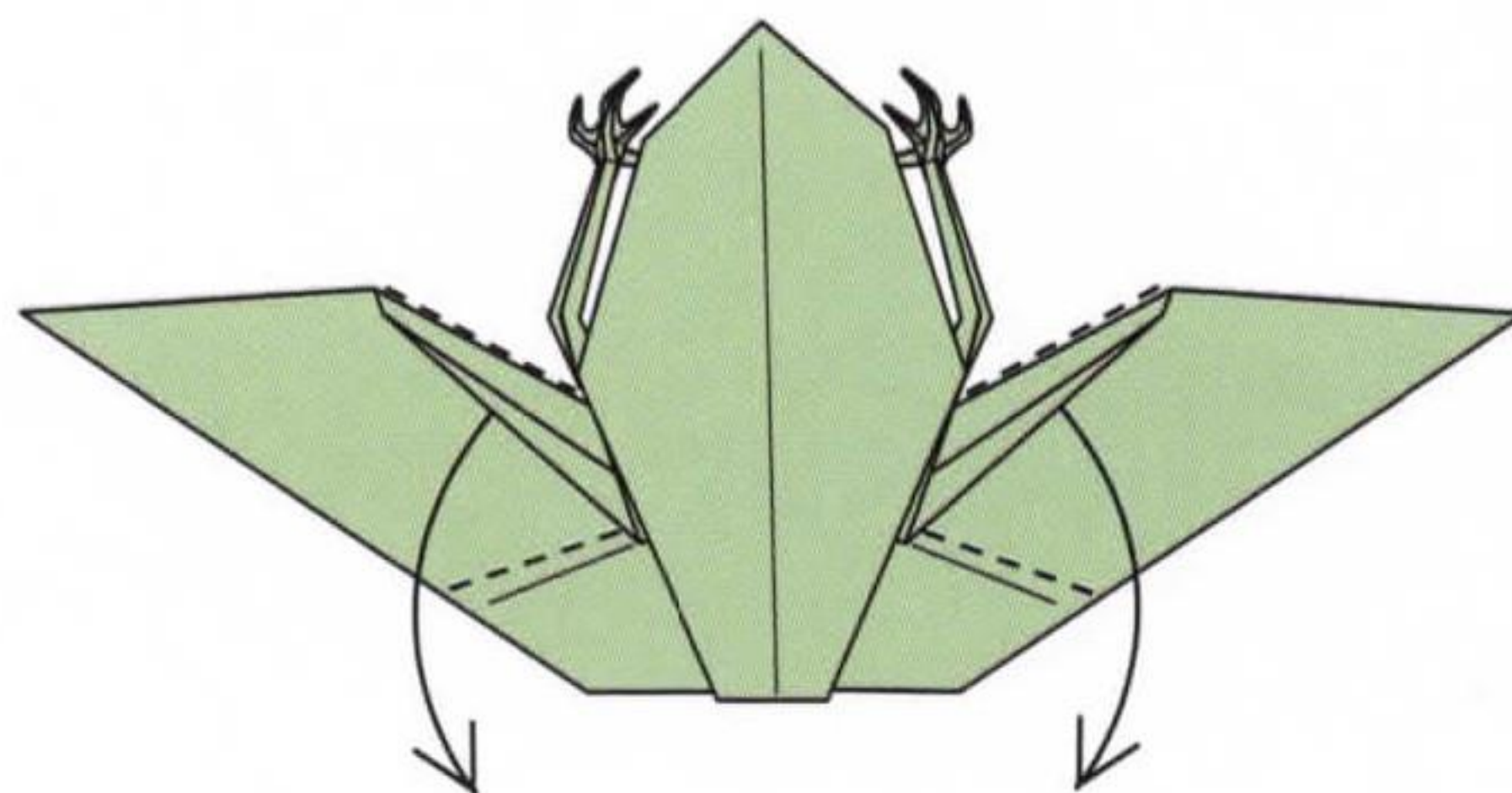
19. Turn over to shape from the other side.



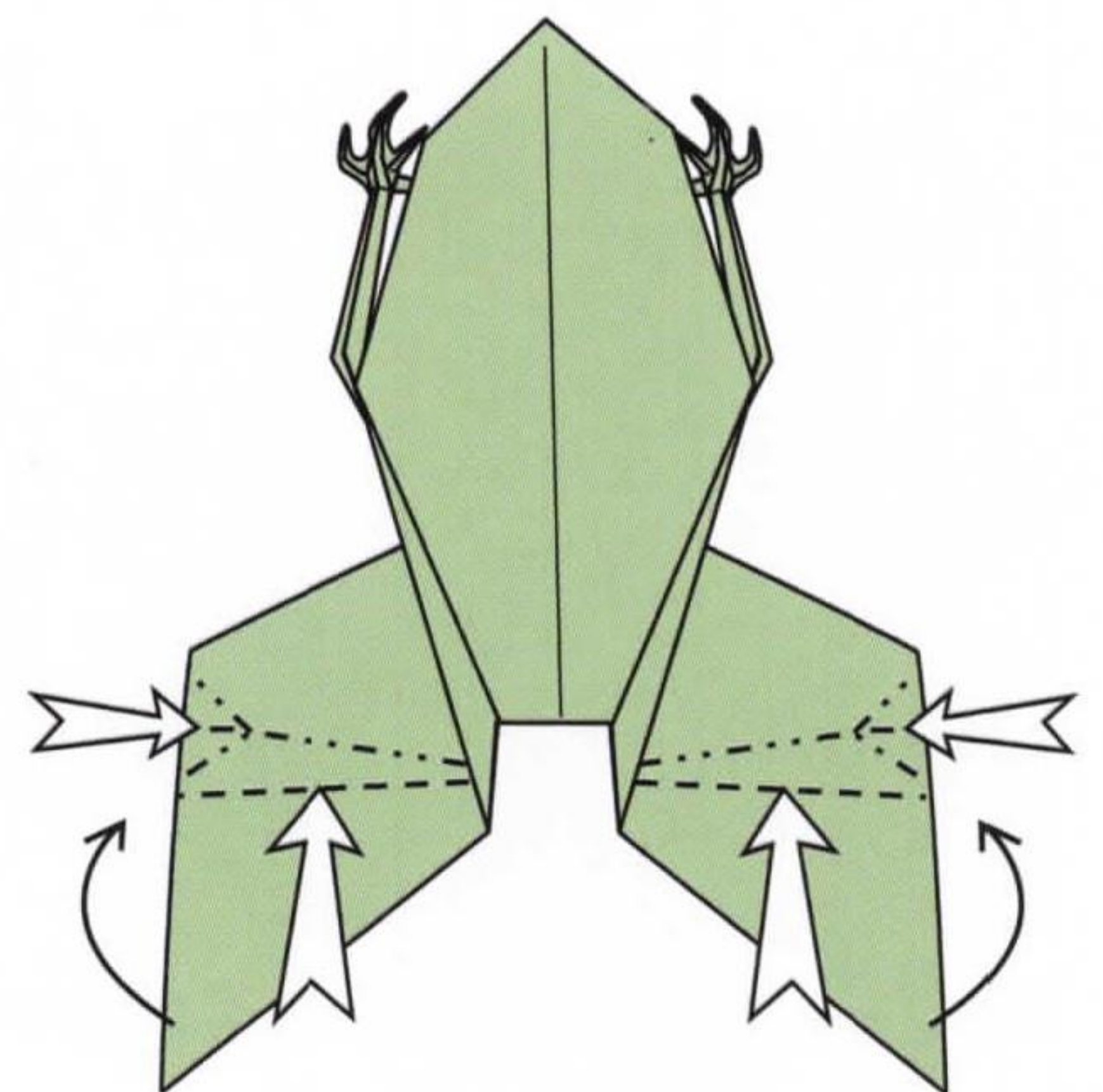
20. Bend the fingers to curve them. Dent the paper at the wrist, from the top side, and bend the "hand" up.



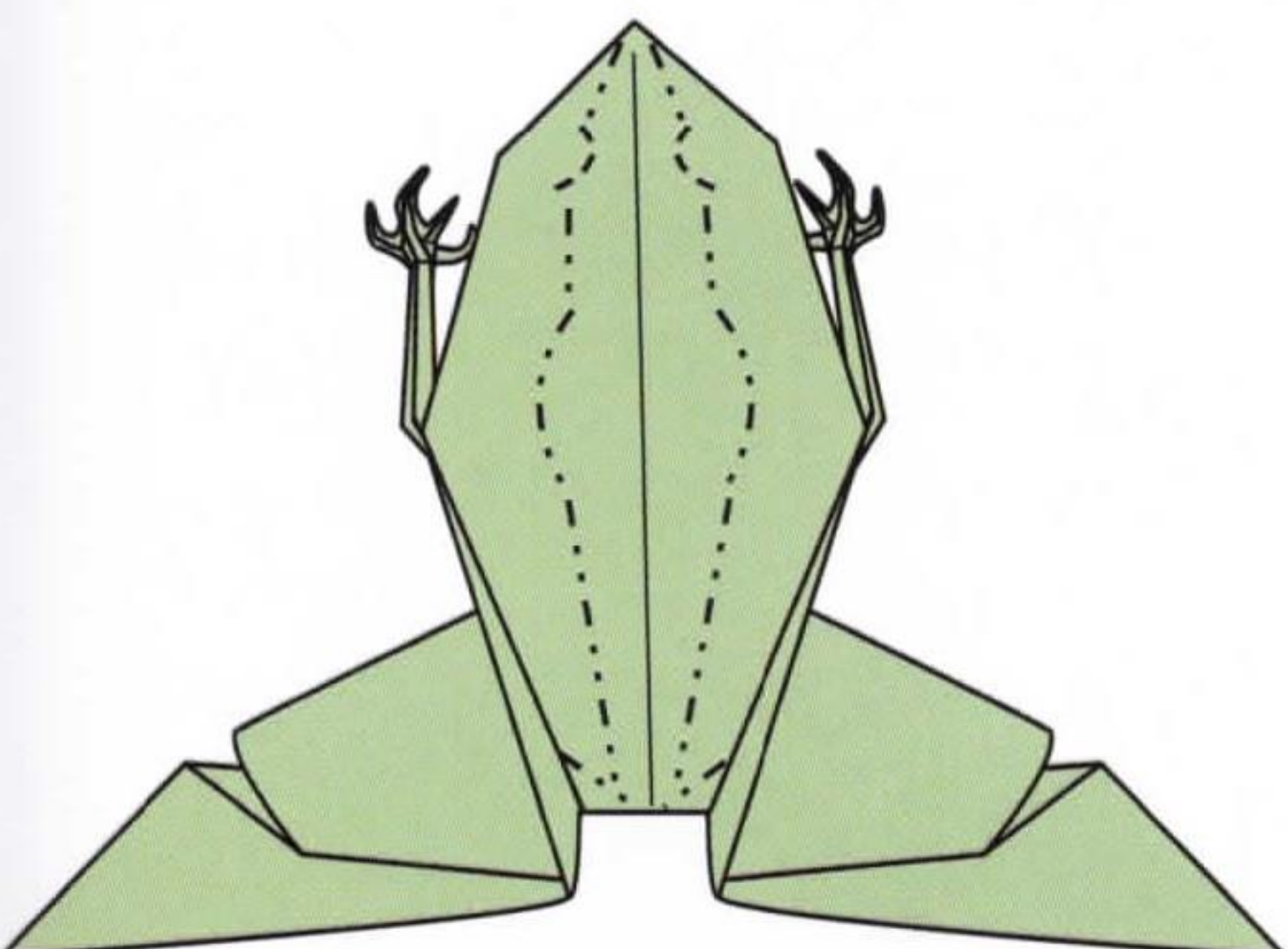
21. Bend at the elbow to move the arm inward. (See the underside view.) Return to the top side. Repeat steps 20 and 21 on the other side.



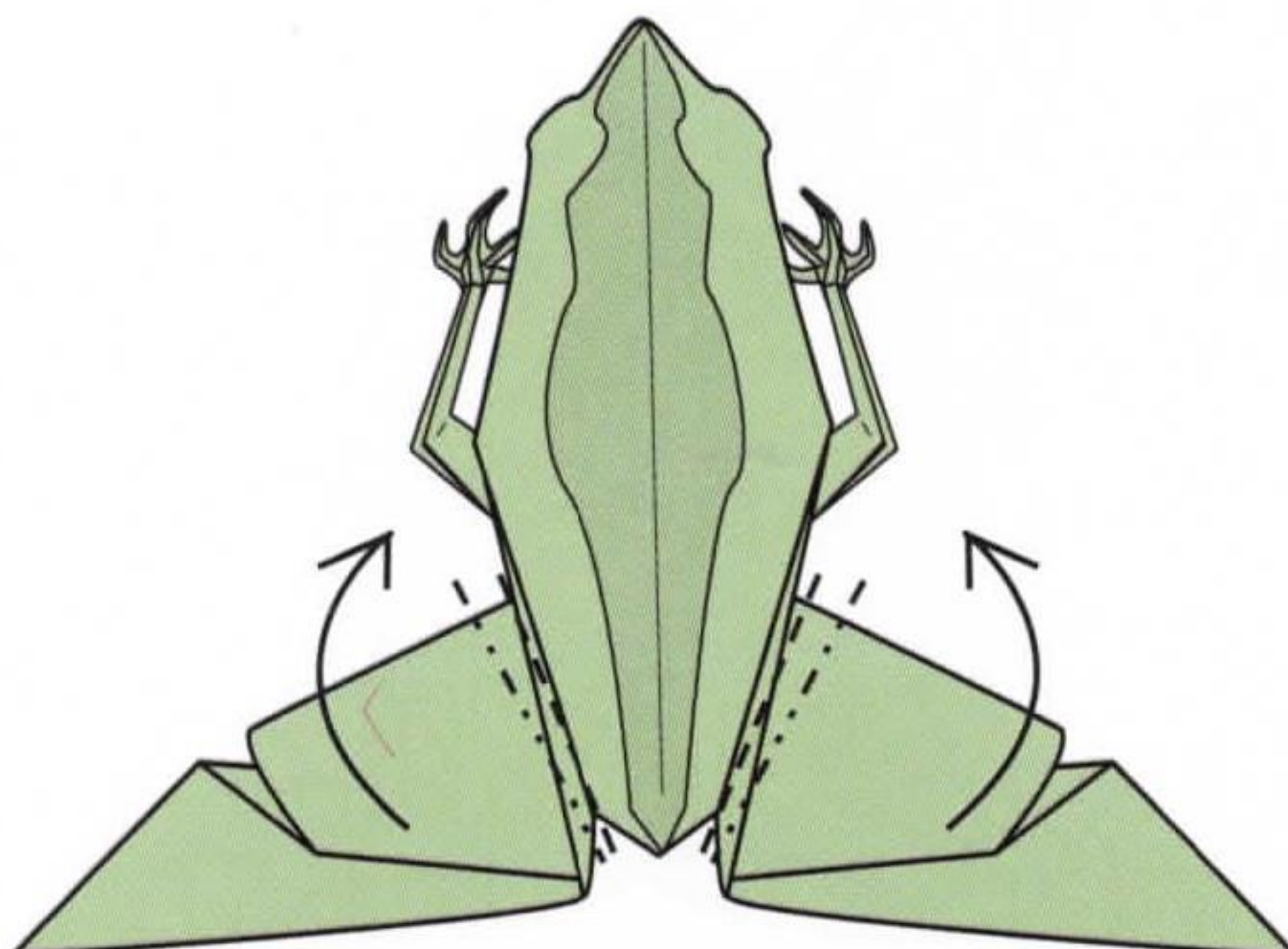
22. Inside-reverse-fold both legs down.



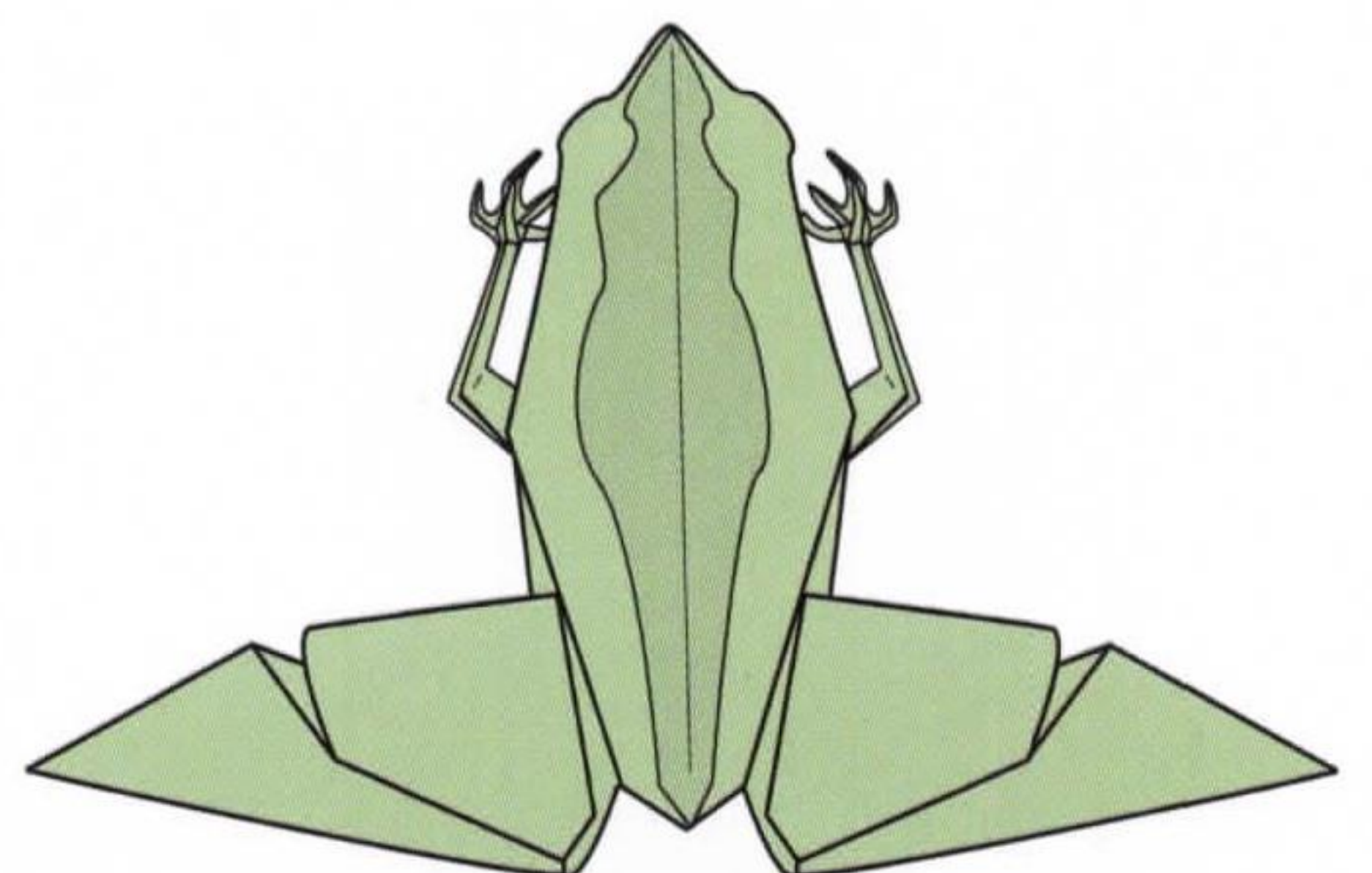
23. Mountain- and valley-fold to shape the feet and hind legs.



24. Trace graceful mountain creases along the top side of the frog to make it more three-dimensional and to form the eyes.



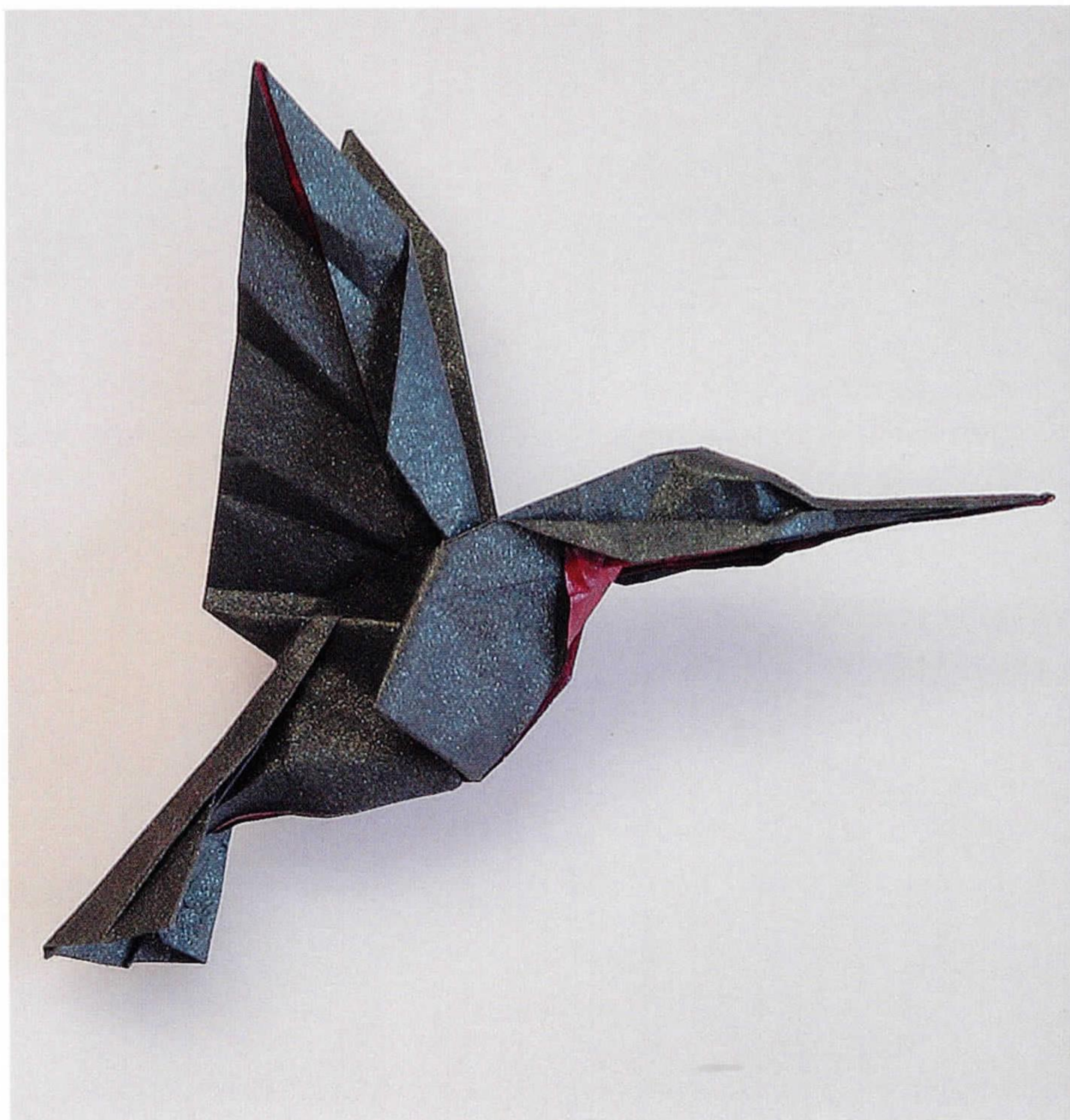
25. Mountain- and valley-fold the legs at their bases, near the body, to move them forward. Refine the form all over.



26. The finished Frog.

ruby- throated humming- bird

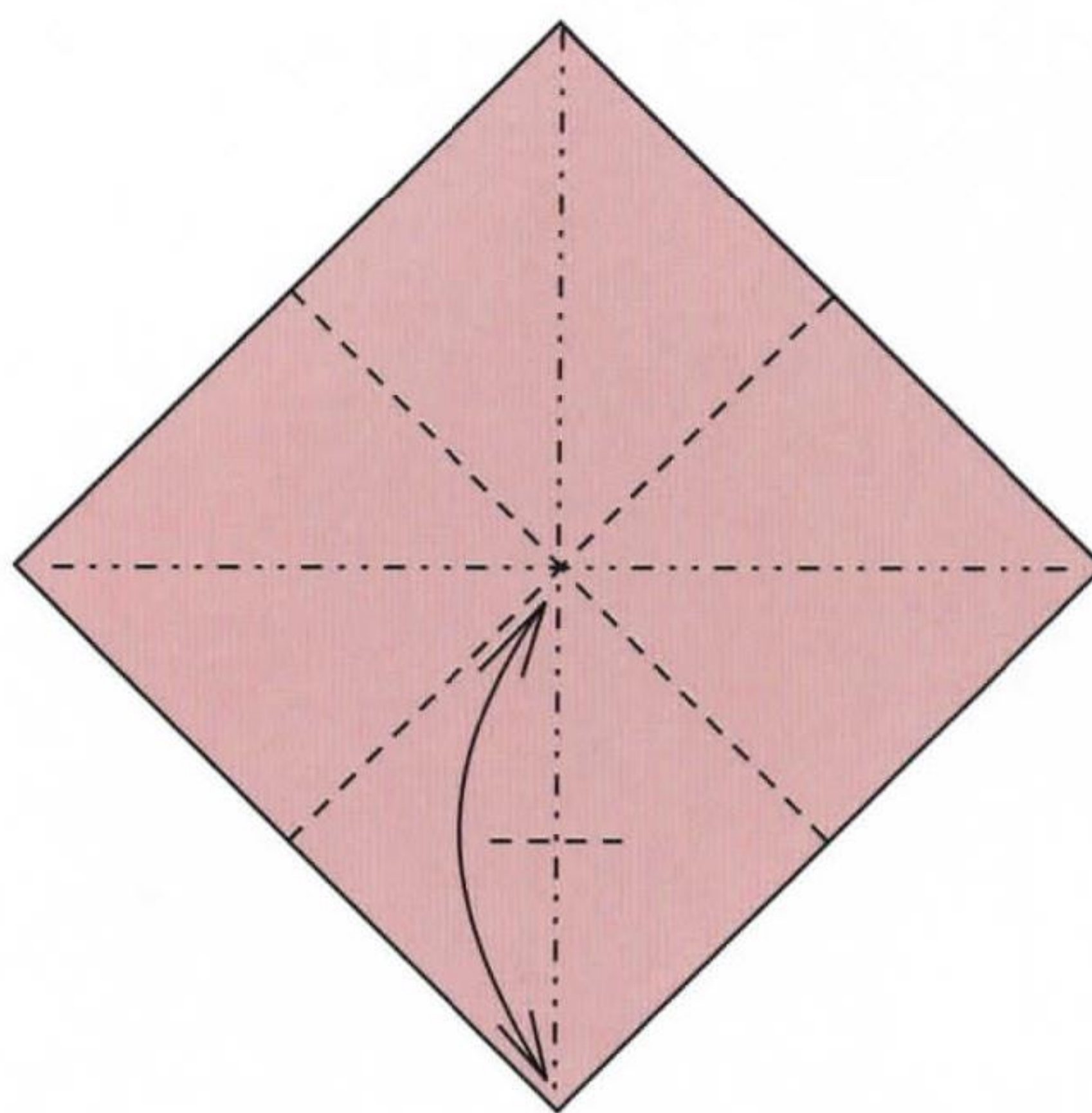
Designed by Michael G. LaFosse



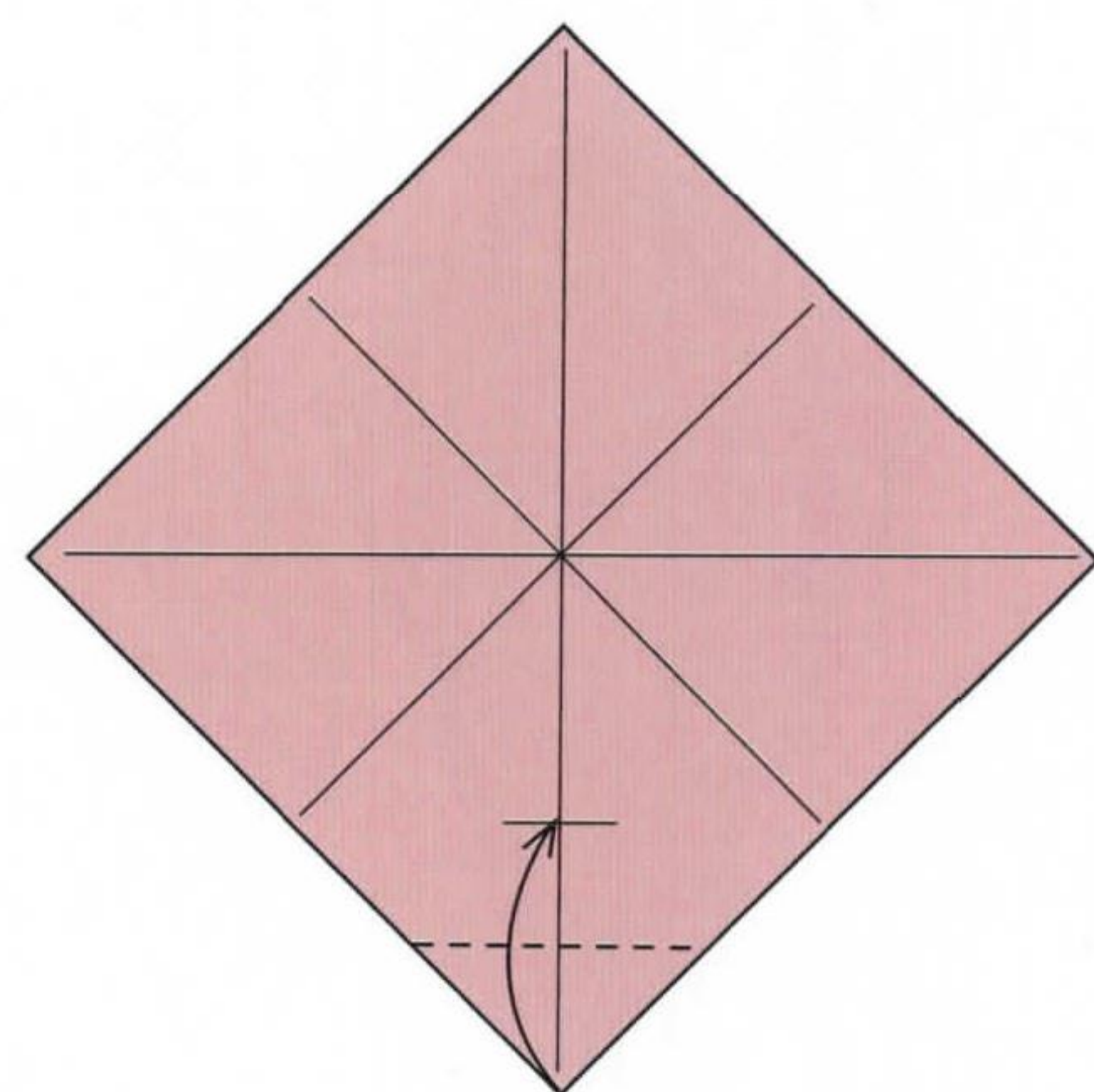
In New England, the most common hummingbird is the ruby-throated hummingbird, so I was already familiar with the species from backyard feeders. In 1997, I was fortunate to be able to live at the Arizona-Sonora Desert Museum in Tucson for an artist-in-residence program that led to my creation of a museum full of origami animals and plants of the desert. Hummingbirds are abundant in Arizona and I enjoyed this opportunity to study dozens of them up close in a walk-in aviary. The greatest challenge with this model is discovering the correct posture. We cannot see the wings of a hovering hummingbird but we can definitely see the bird's unique posture silhouetted from the side. Your origami model should capture the essence of this tiny yet powerful bird, capable of kicking into high gear in an instant.

PAPER SUGGESTIONS

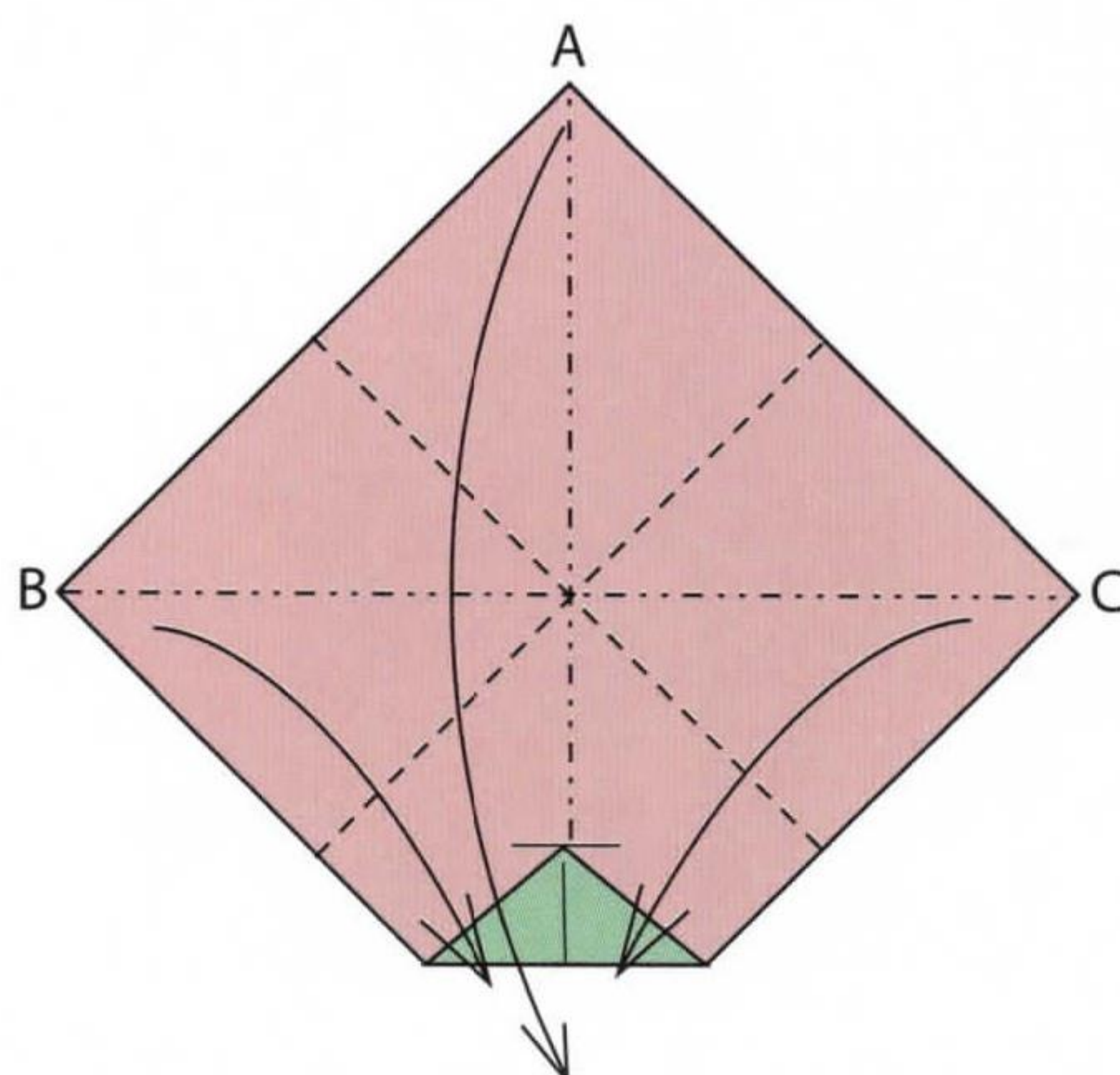
The male ruby-throated hummingbird is made from paper that is green on one side, red on the other. The female requires paper that is green on one side and white on the other, since her throat is white, not red. Now that there are so many sparkly papers commercially available, it is fun to try this model with different materials to make different species. I have developed a special handmade paper for this bird, but since bright red colored pulps are difficult to produce without using toxic pigments, we often apply a red acrylic paint to the back of the shimmering green handmade paper. We can mix the acrylic paints to adjust the color and hue while mixing in mica for shimmer, but commercially available pearlescent or iridescent acrylics are also suitable. A 6-inch (15-cm) square will produce a hummingbird 4 inches (10 cm) long.



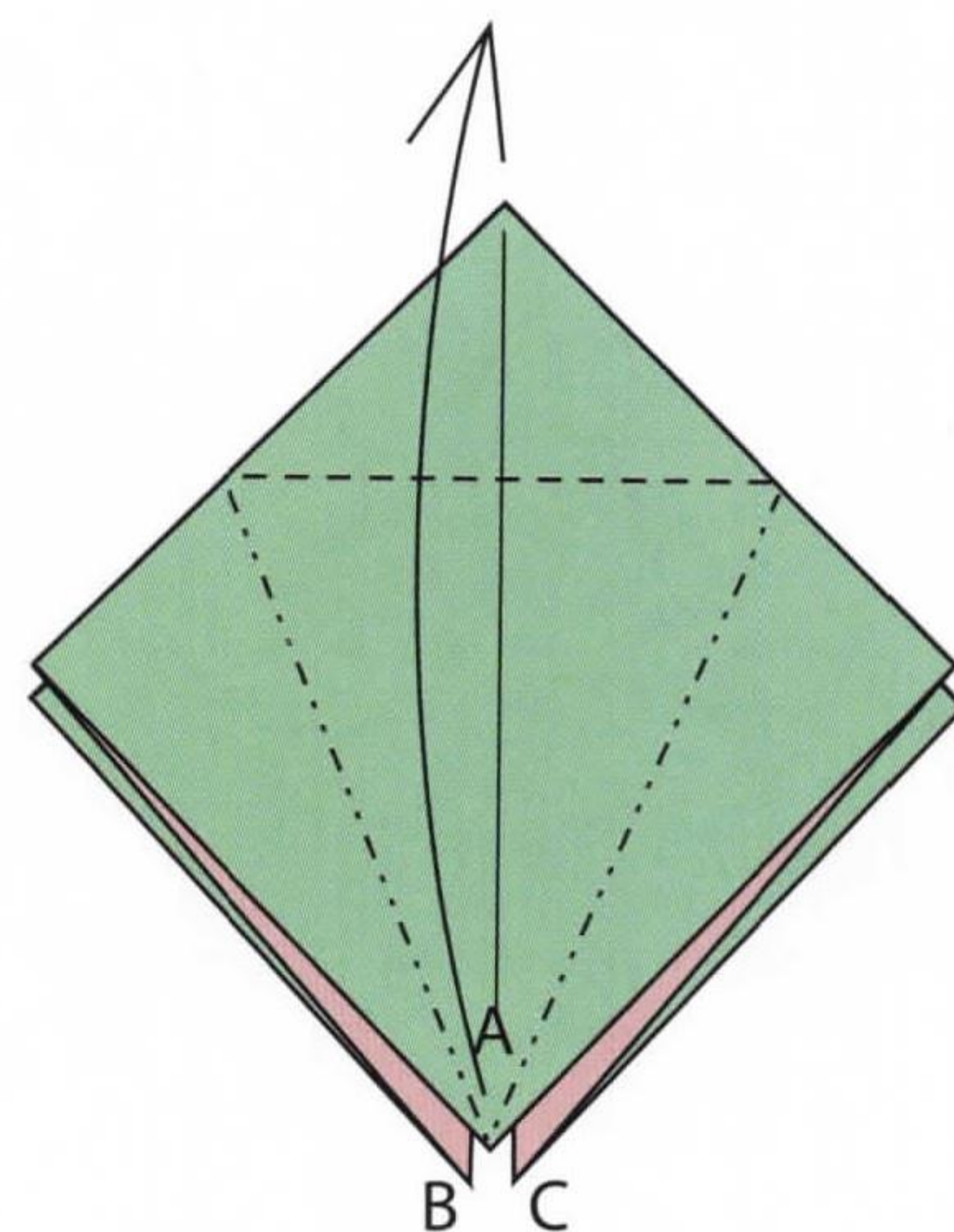
1. Begin with the red side up. Valley-fold edge to edge, both ways. Mountain-fold corner to corner, both ways. Fold the bottom corner up and make a pinch mark.



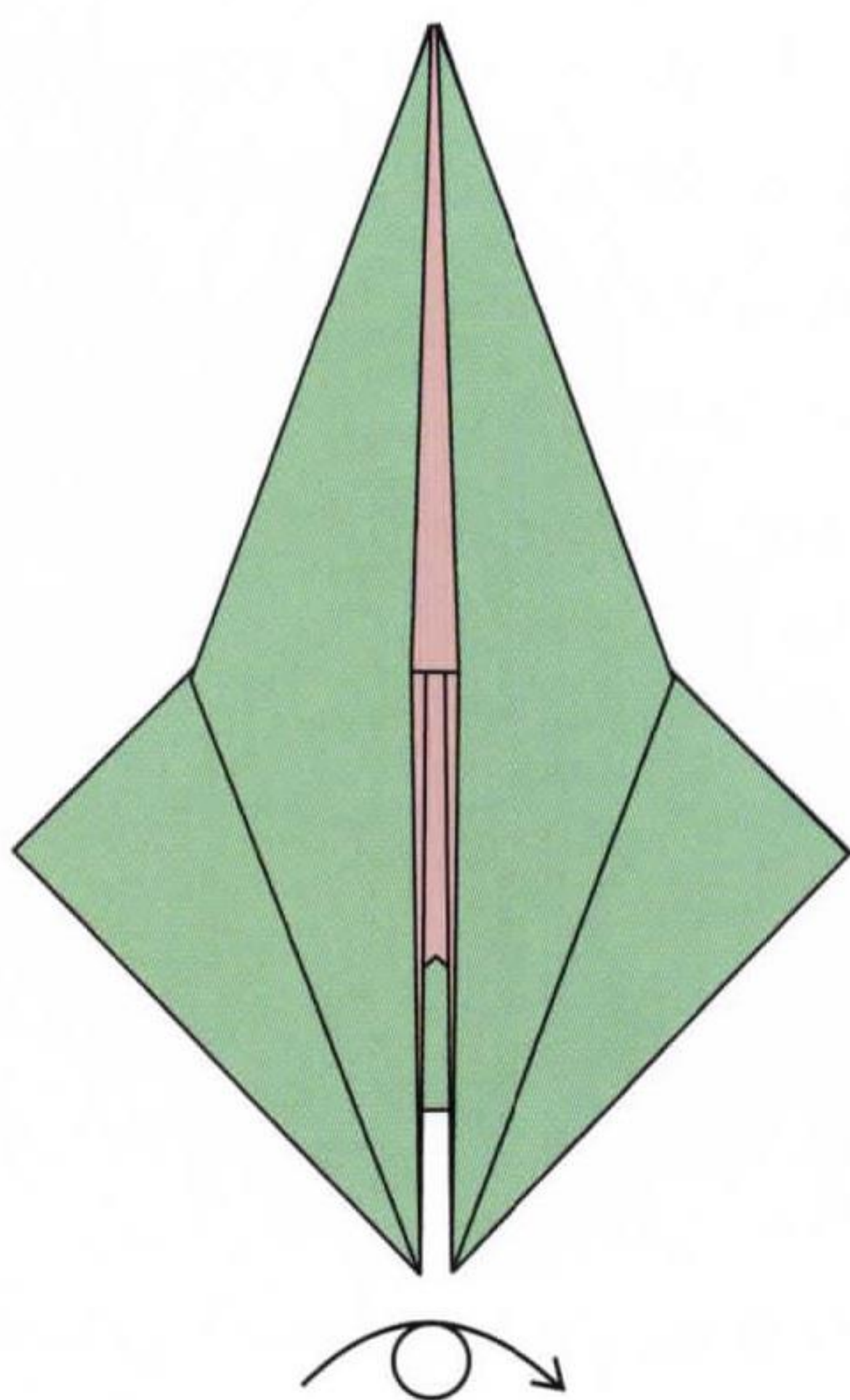
2. Fold up the bottom corner to the pinch mark.



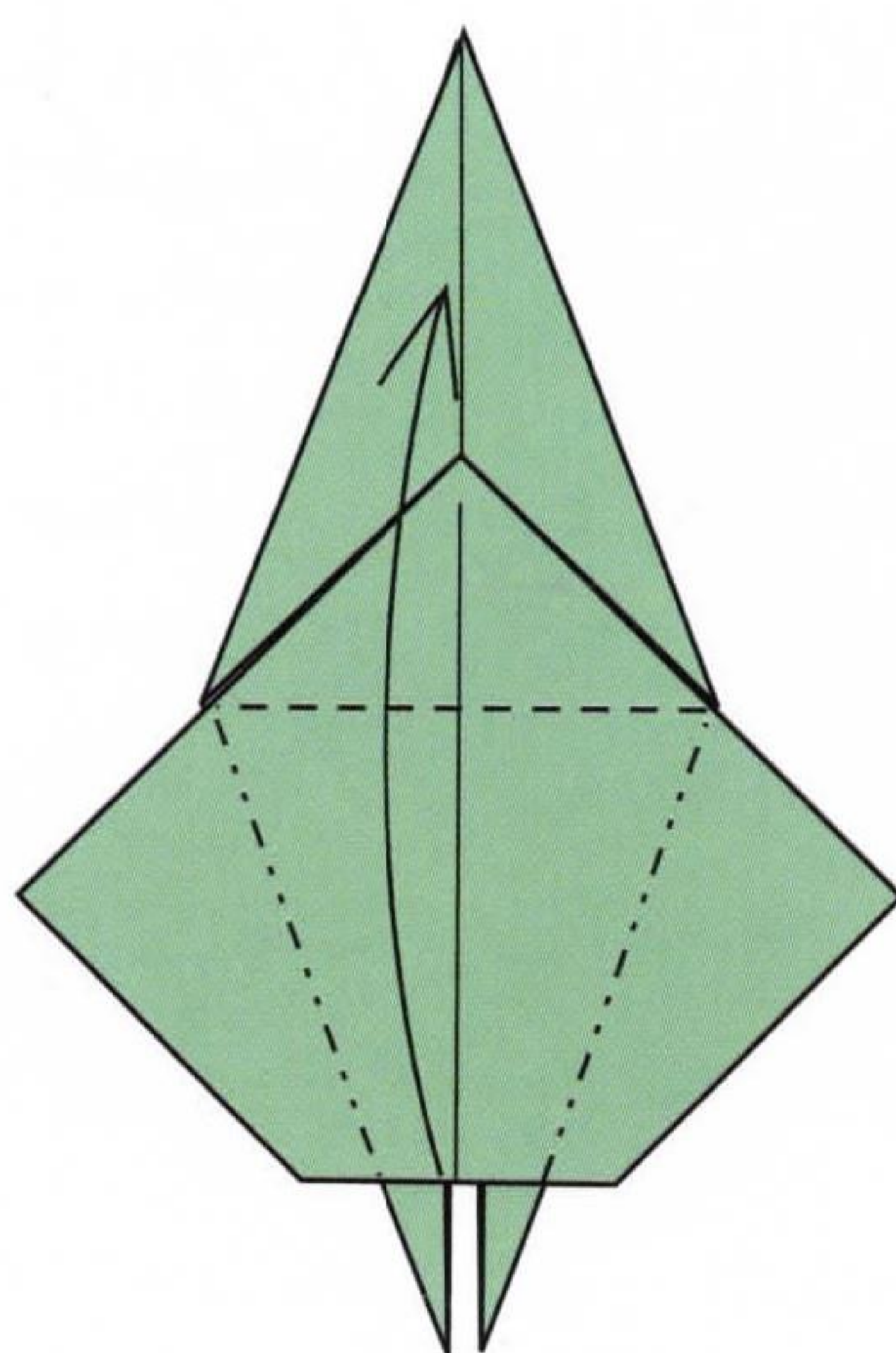
3. Use the crease pattern to bring corners A, B and C together at the bottom.



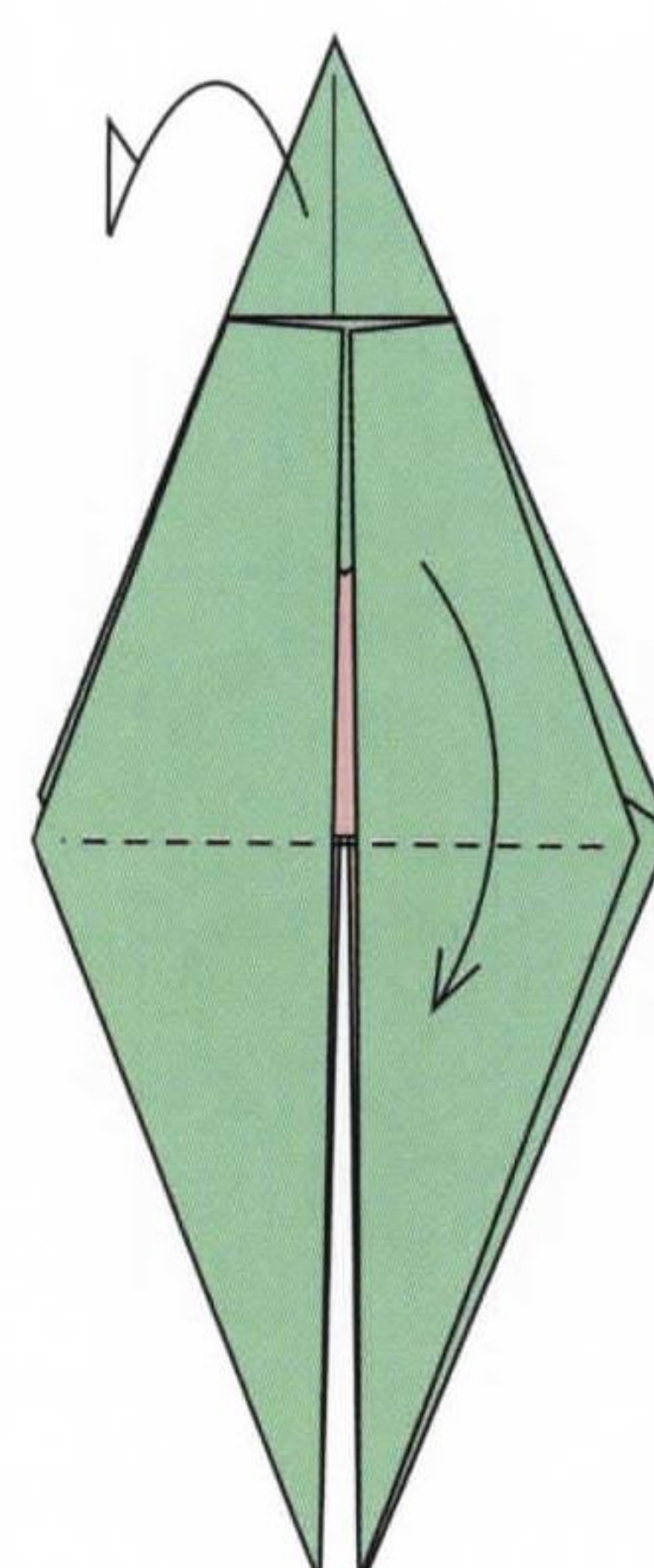
4. Petal-fold up.



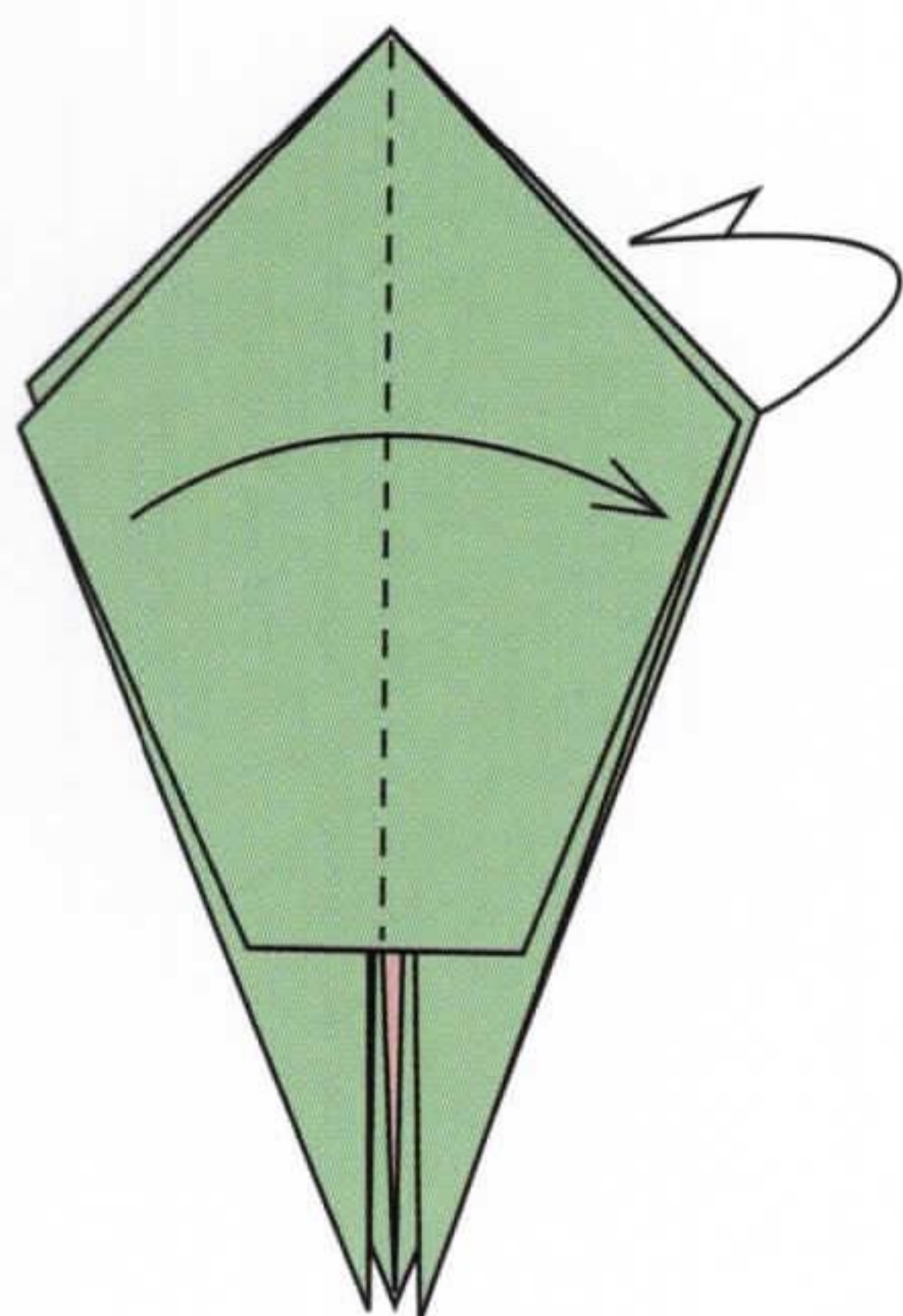
5. Turn the model over, left to right.



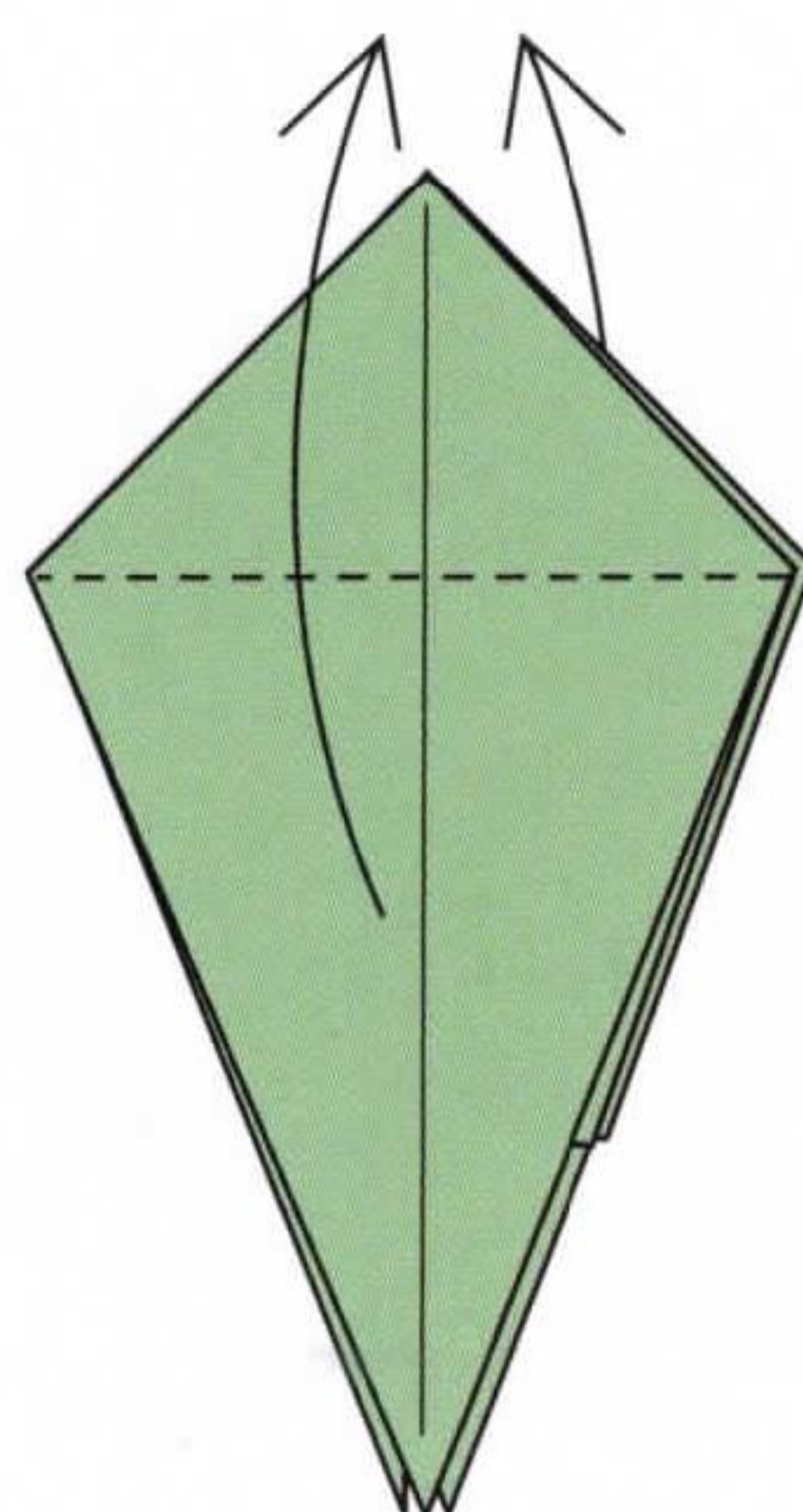
6. Petal-fold up.



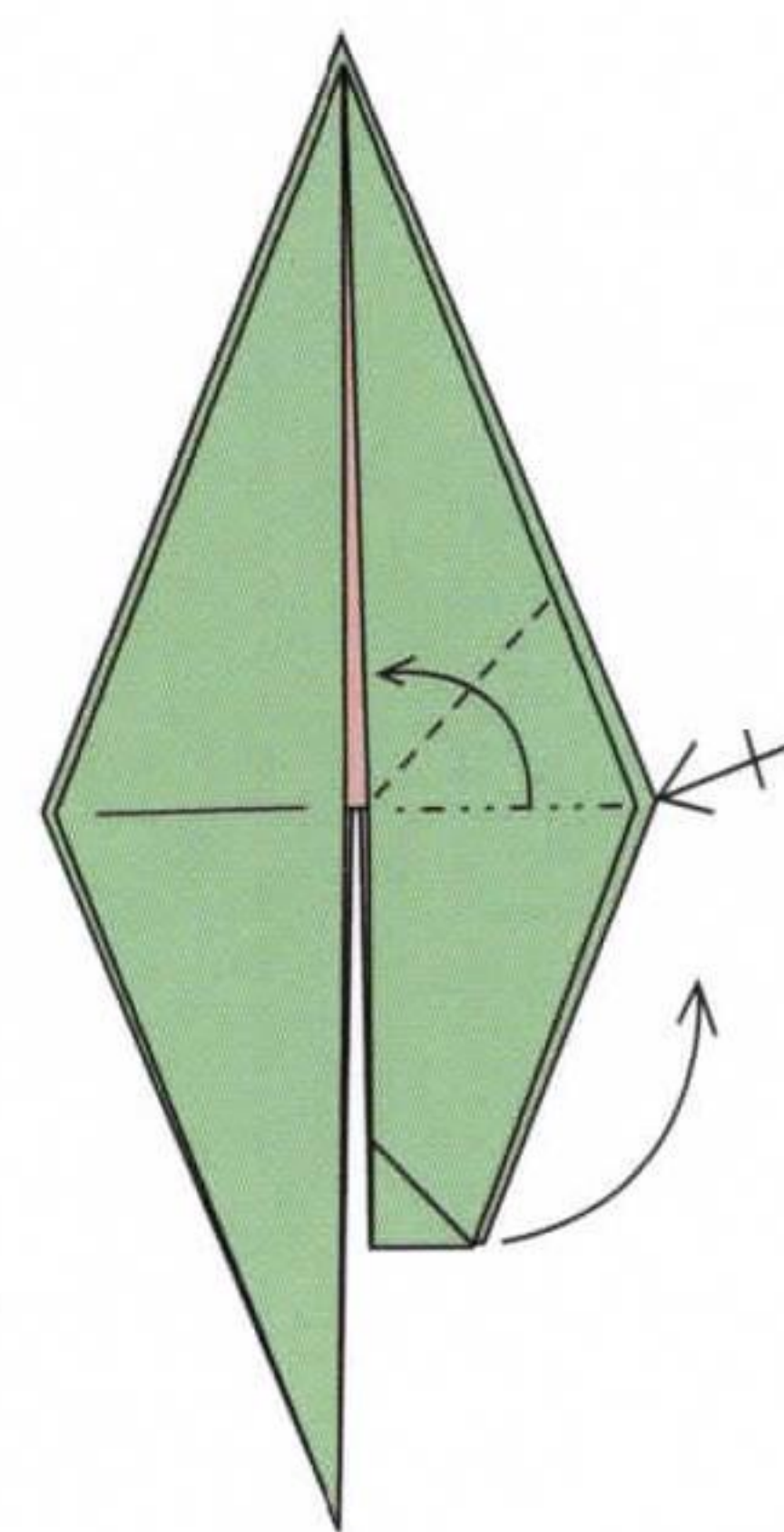
7. Bring the top flaps back down, one on each side.



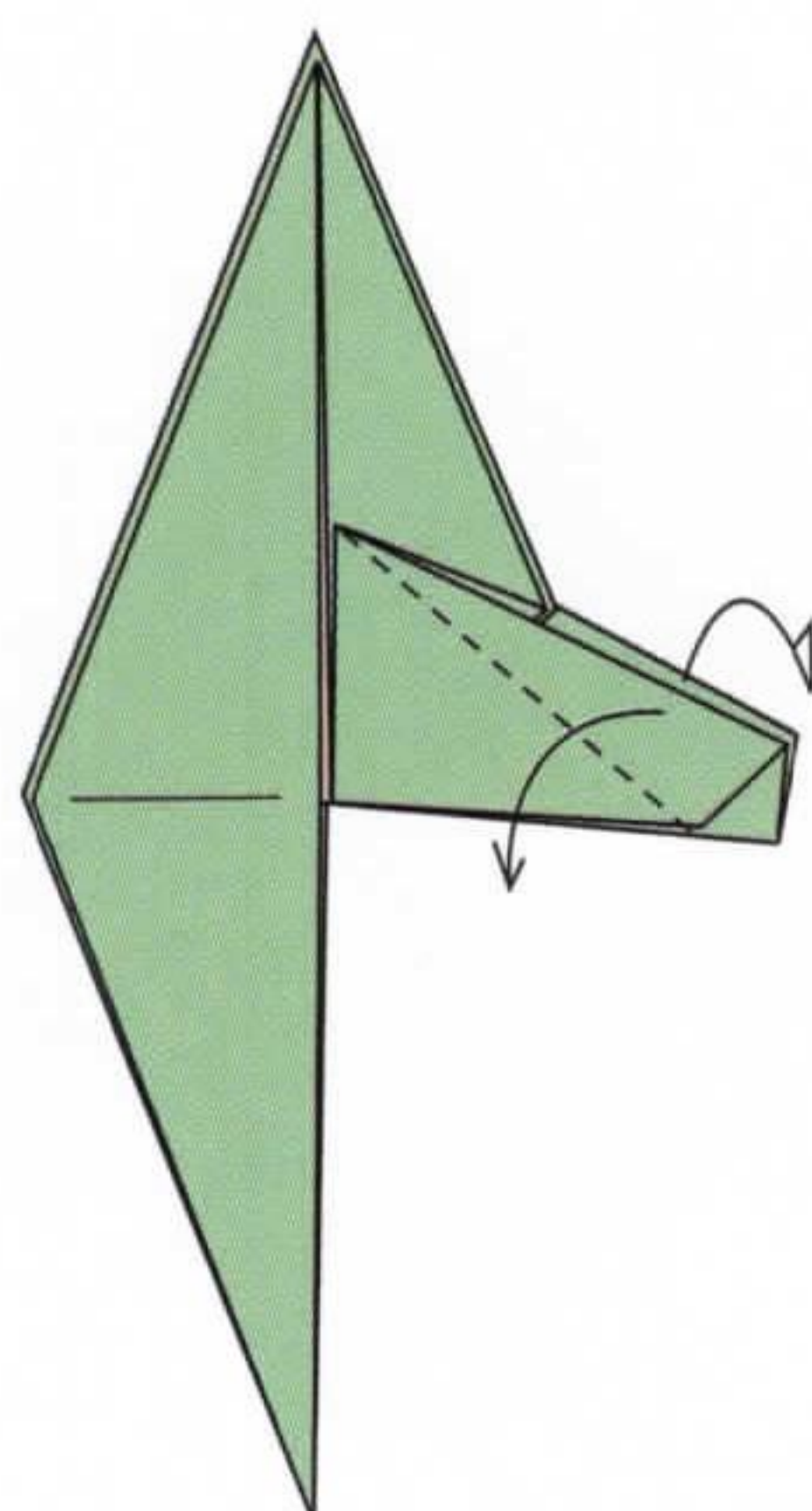
8. Reorient the paper flaps: upper-left folds over to the right; lower-right folds over to the left.



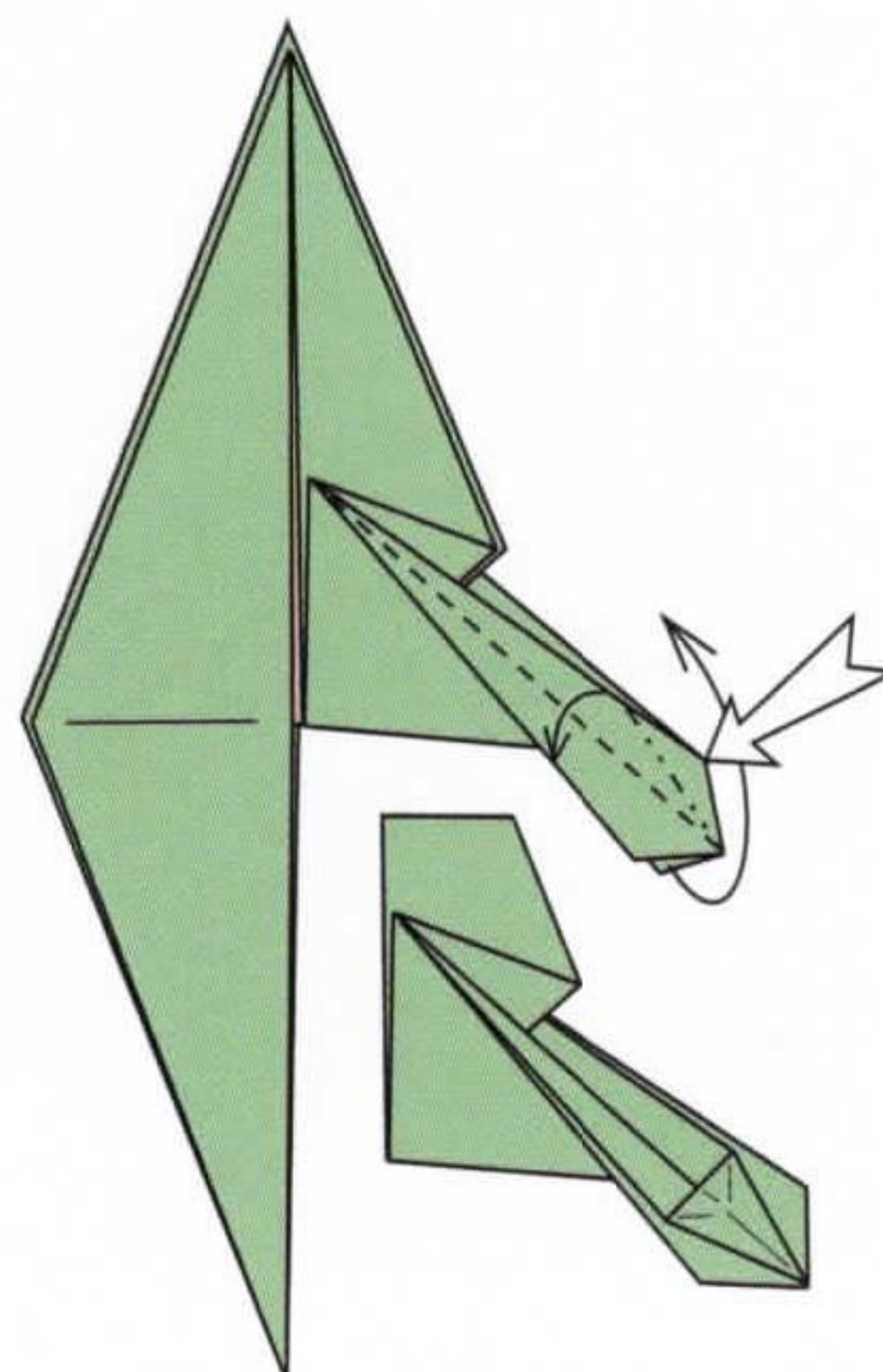
9. Bring the front and back flaps up.



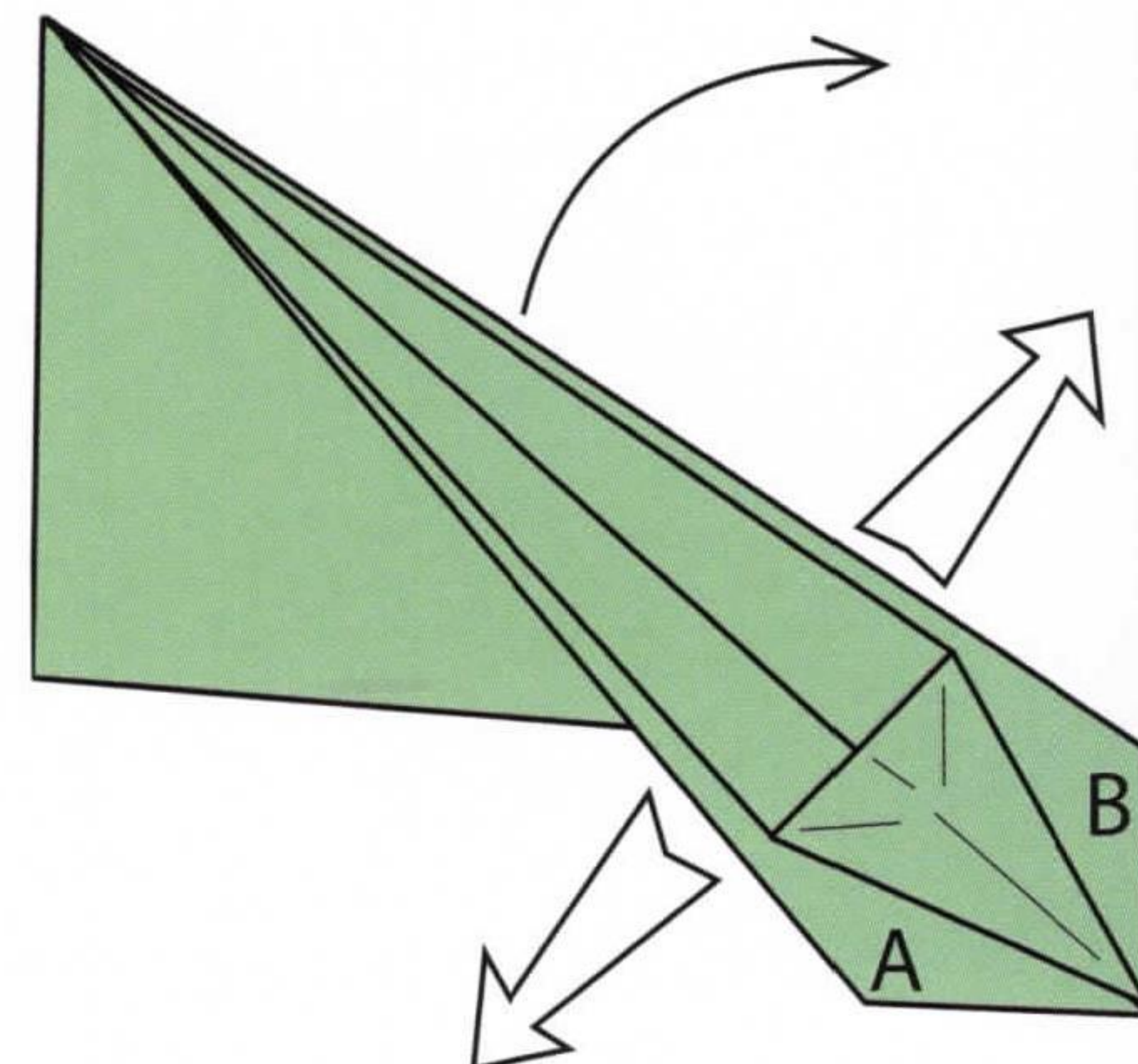
10. Mountain-fold along the middle of the right front corner of the diamond shape and move it to the center. Repeat behind. This is the tail paper.



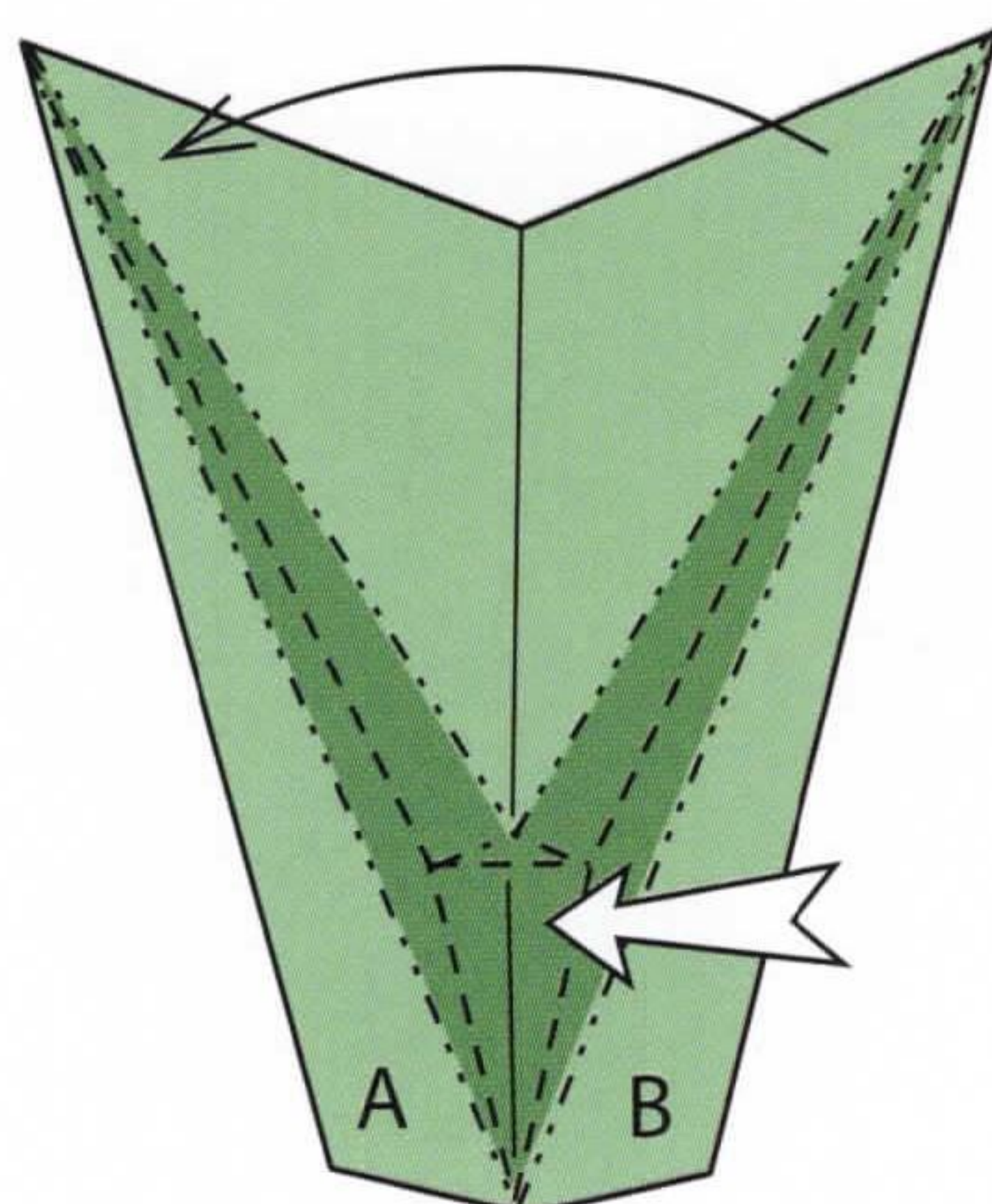
11. Fold both sides down.



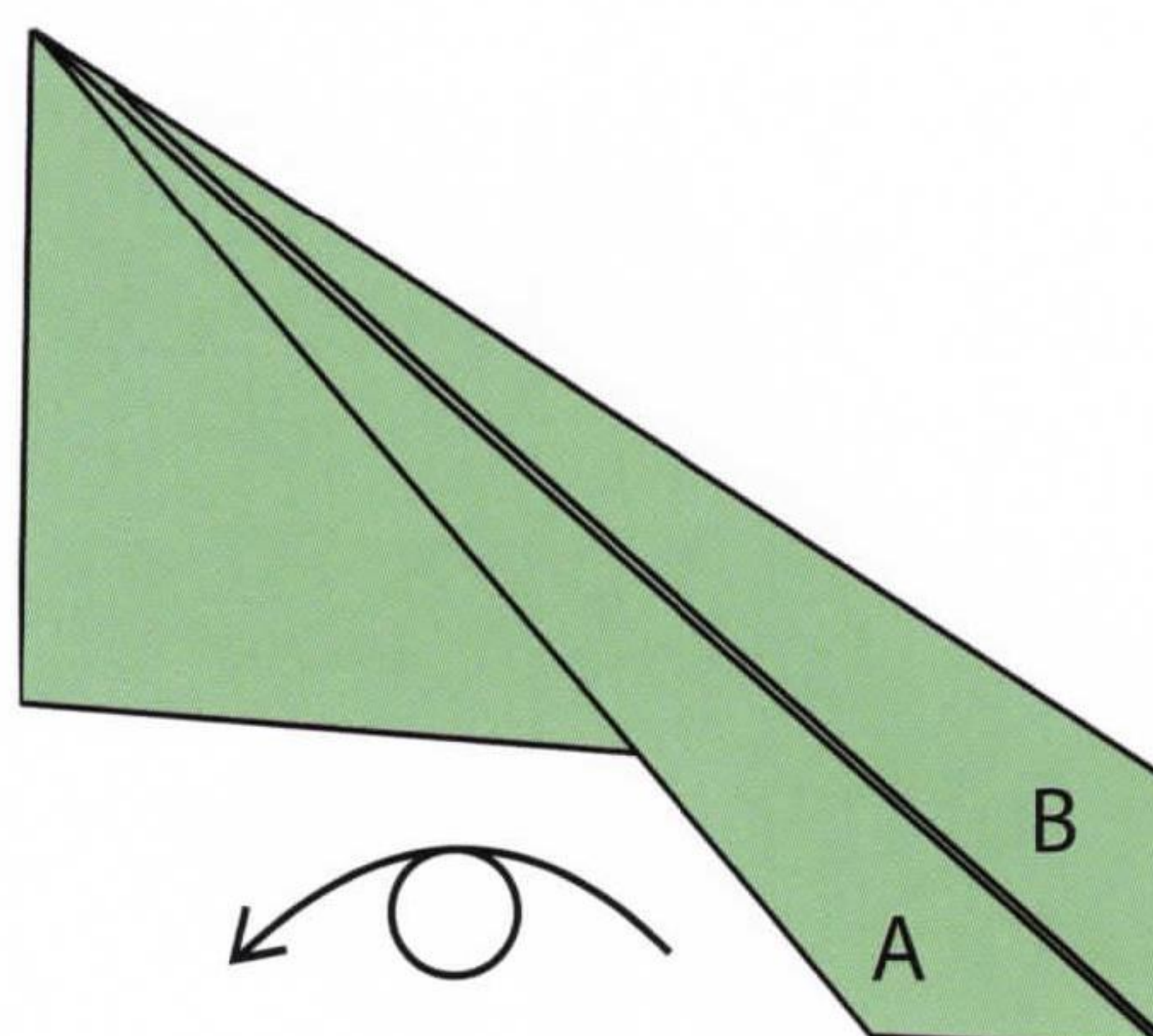
12. Open the center of the tail paper toward you and flatten it. Move the bottom back layer to make the shape symmetrical.



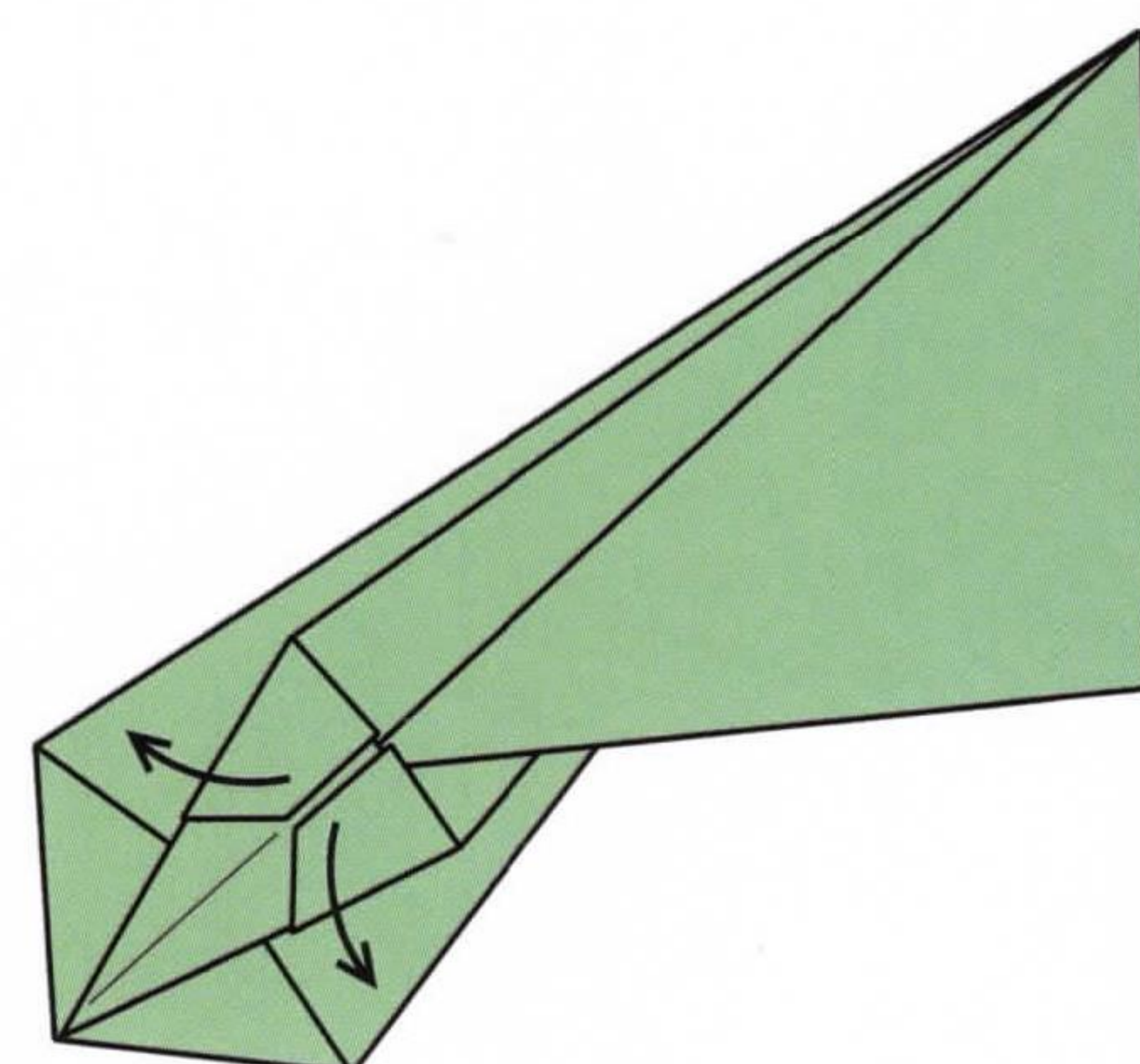
13. Pull open the tail paper.



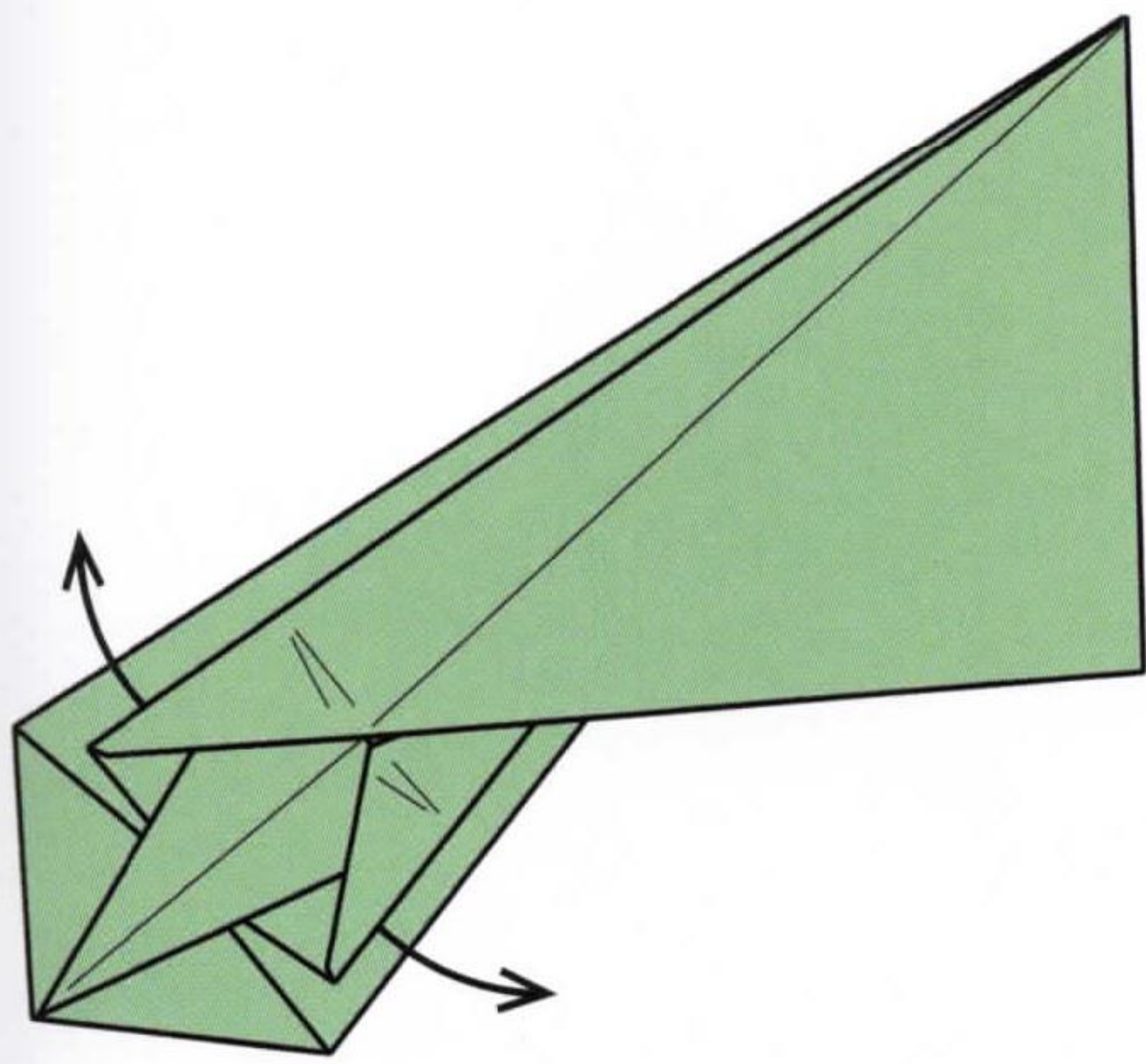
14. Sink the indicated area and close the tail paper.



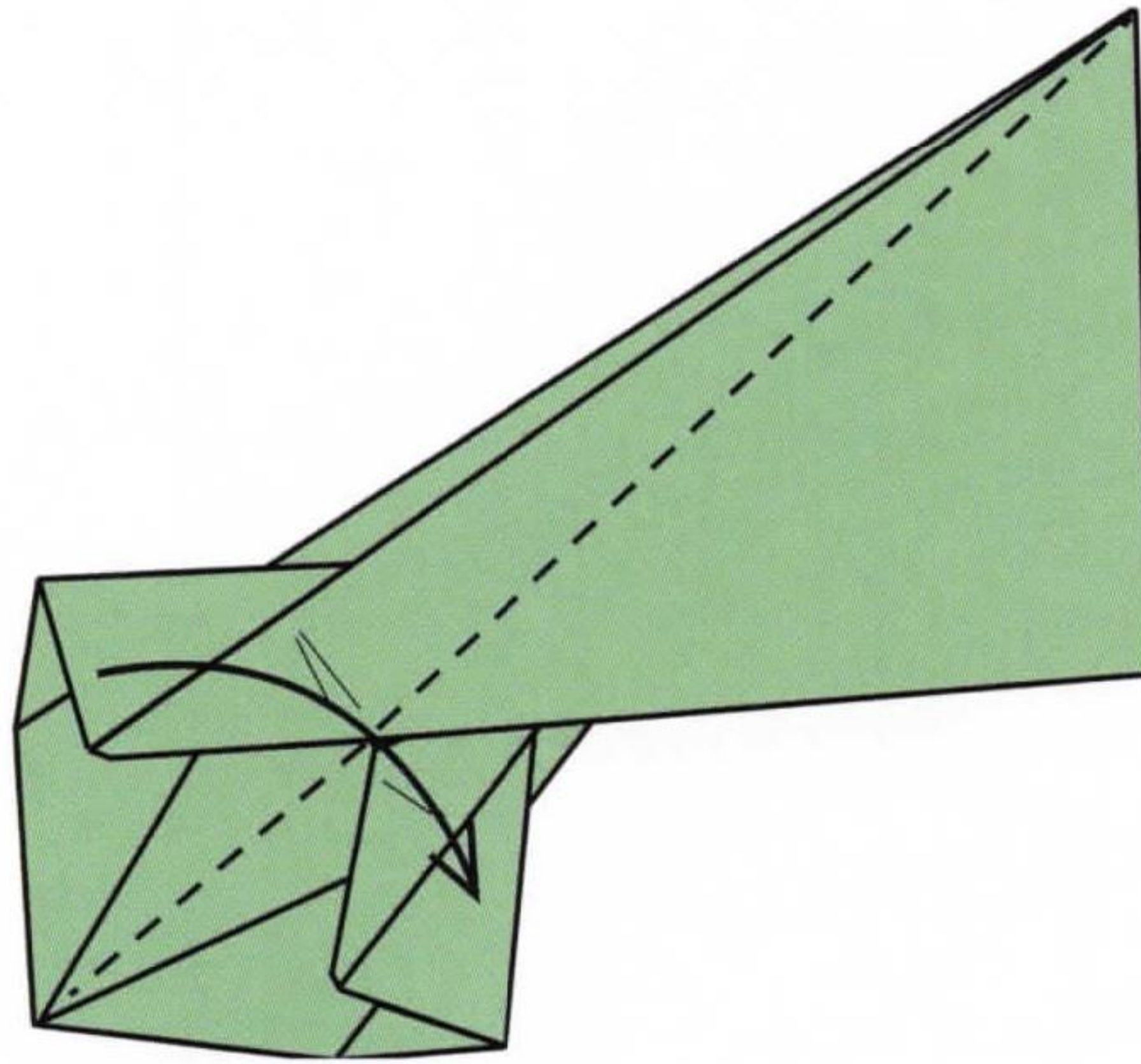
15. Turn over, right to left.



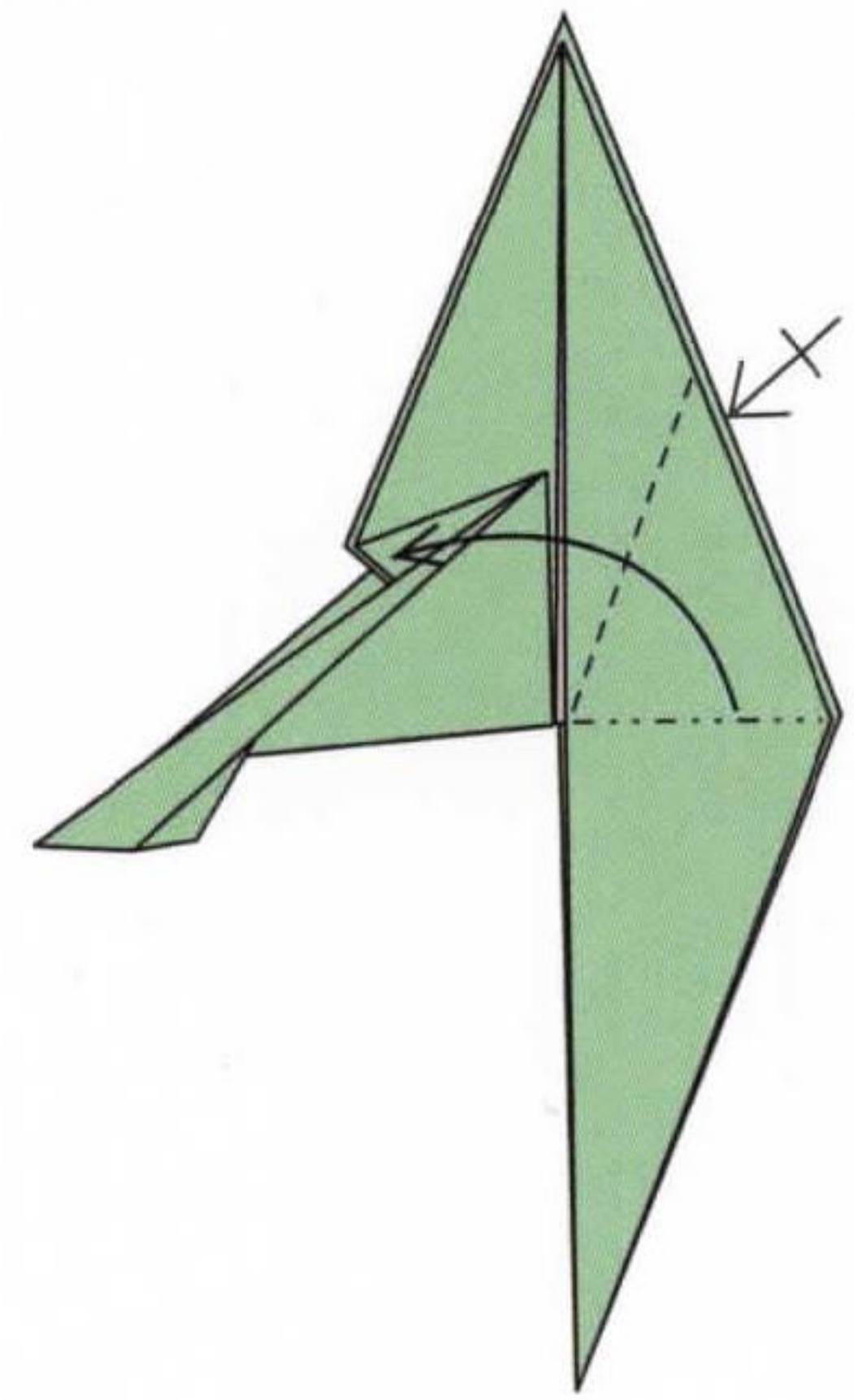
16. Open out the indicated layers.



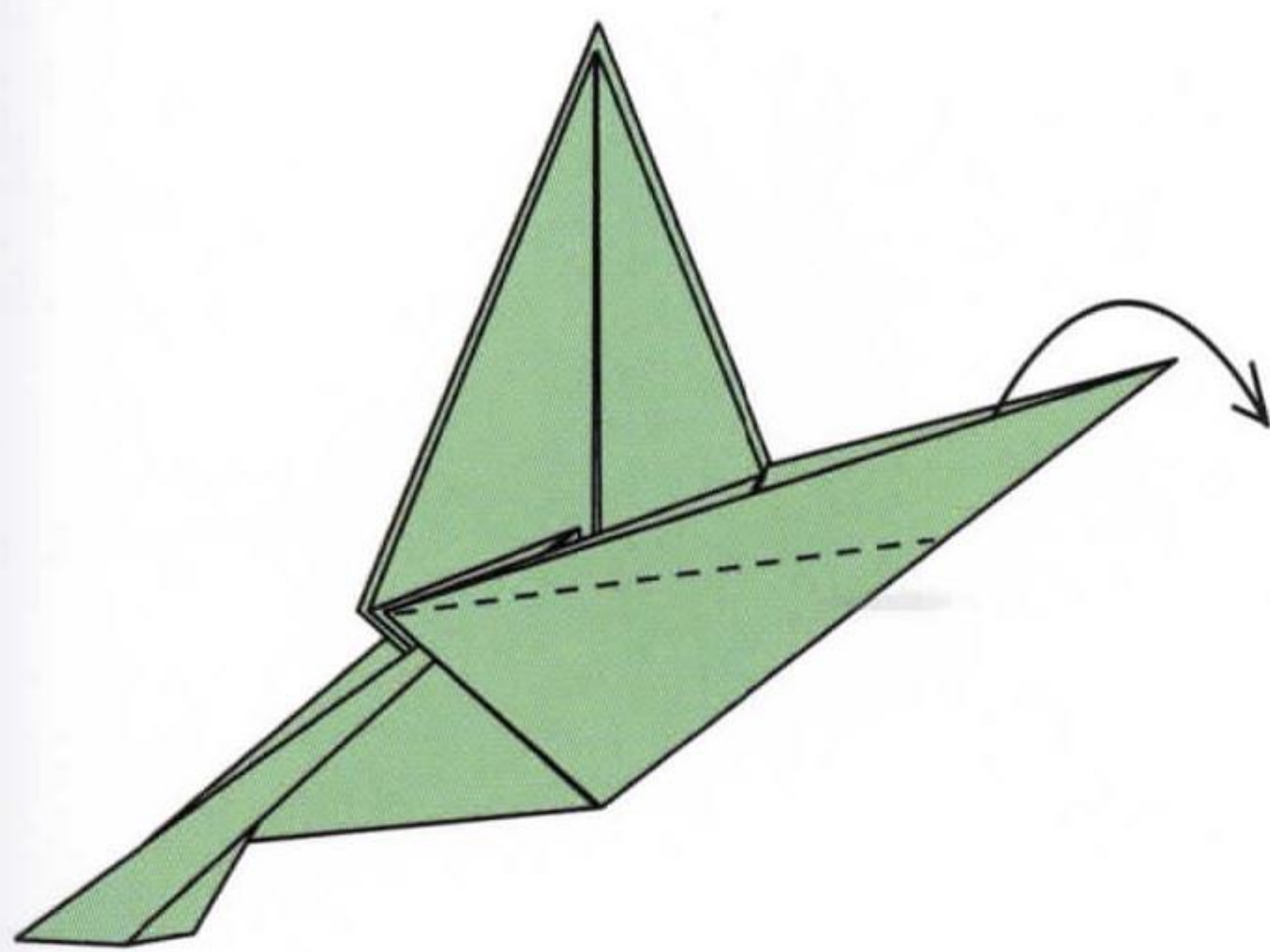
17. Pull out the center layers to inside-reverse-fold a flared section of the tail feathers.



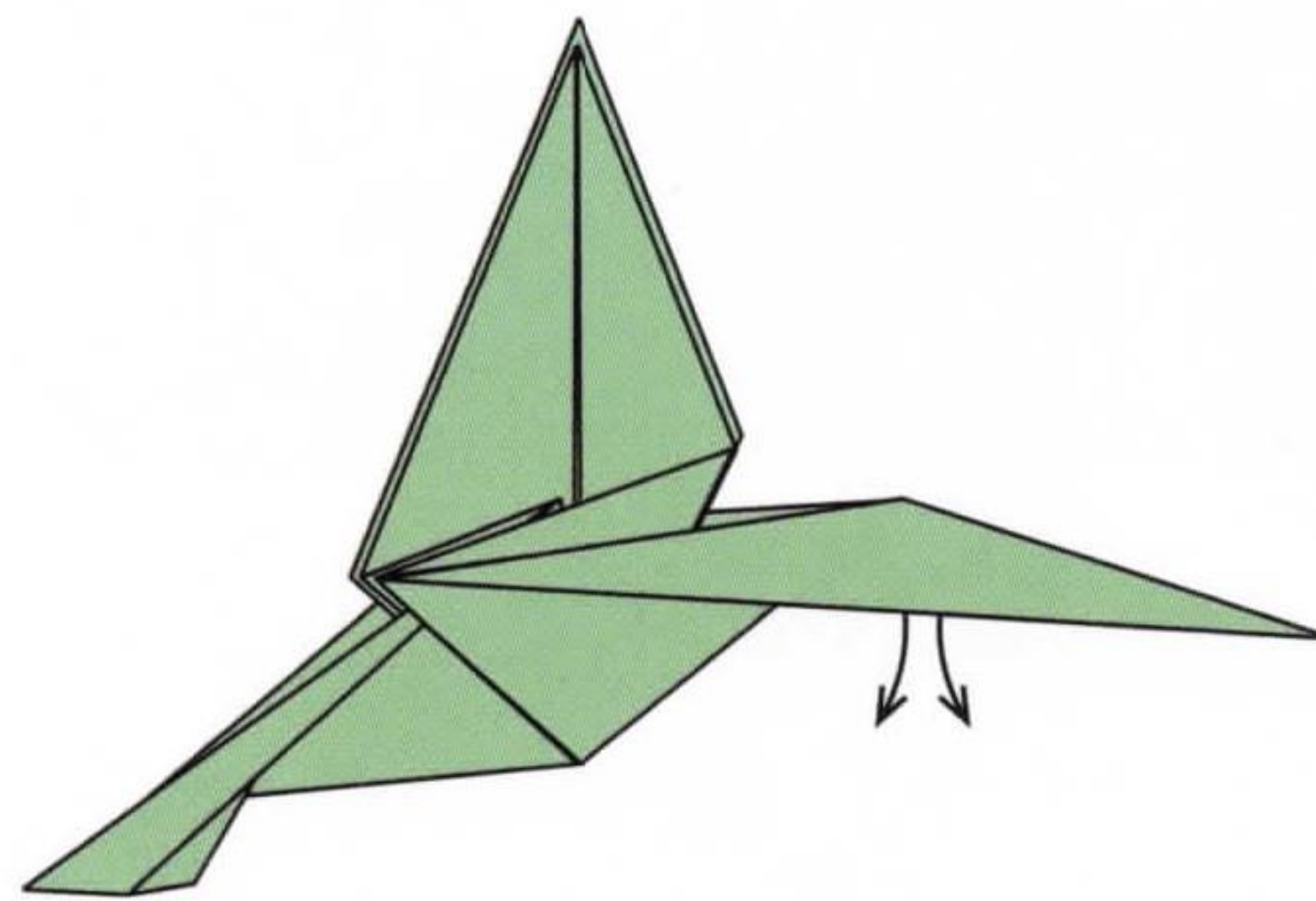
18. Fold the tail in half.



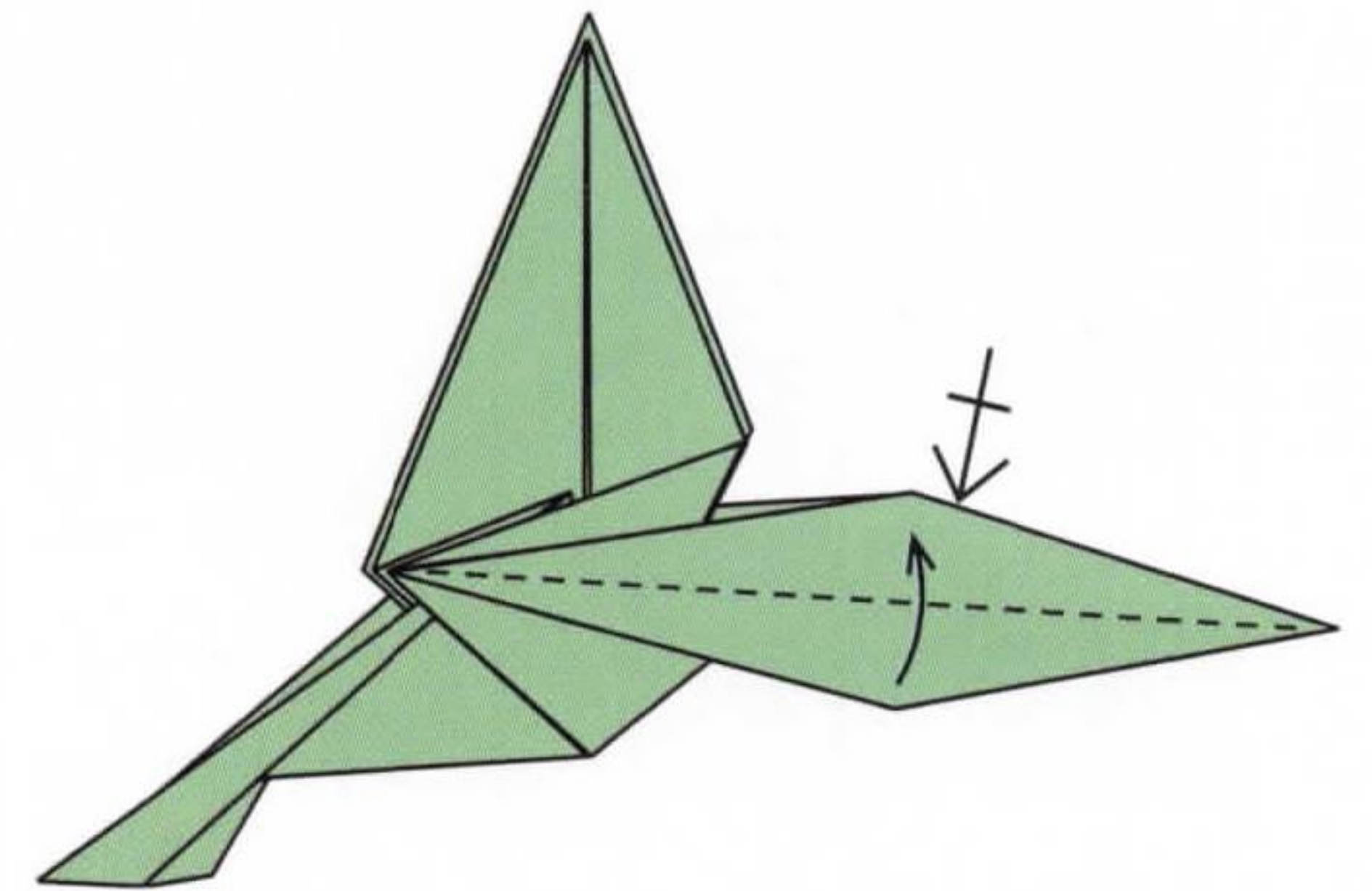
19. Mountain-fold along the middle of the right front corner of the half-diamond shape and move it to the center. Repeat behind. This is the head paper.



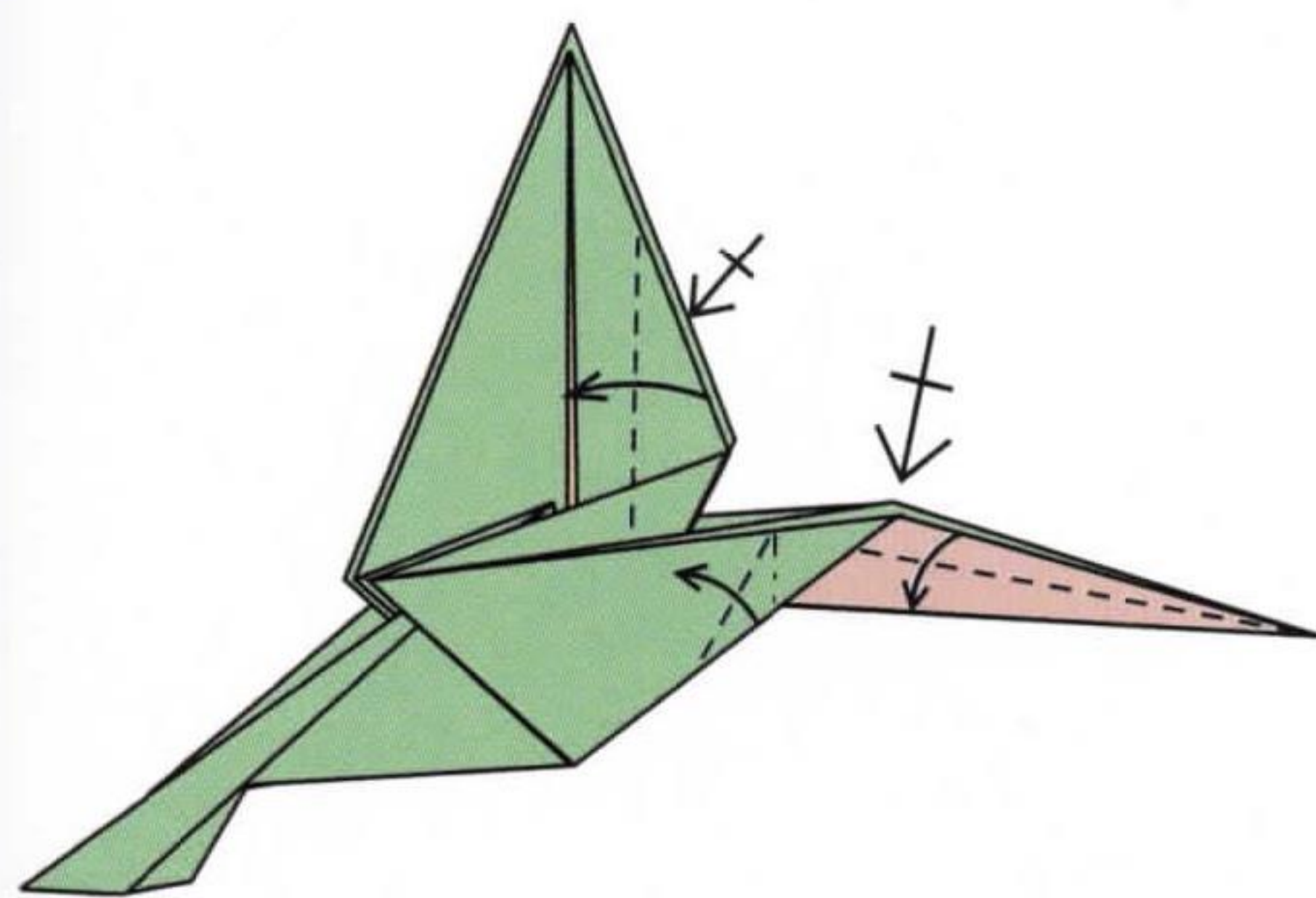
20. Outside-reverse-fold.



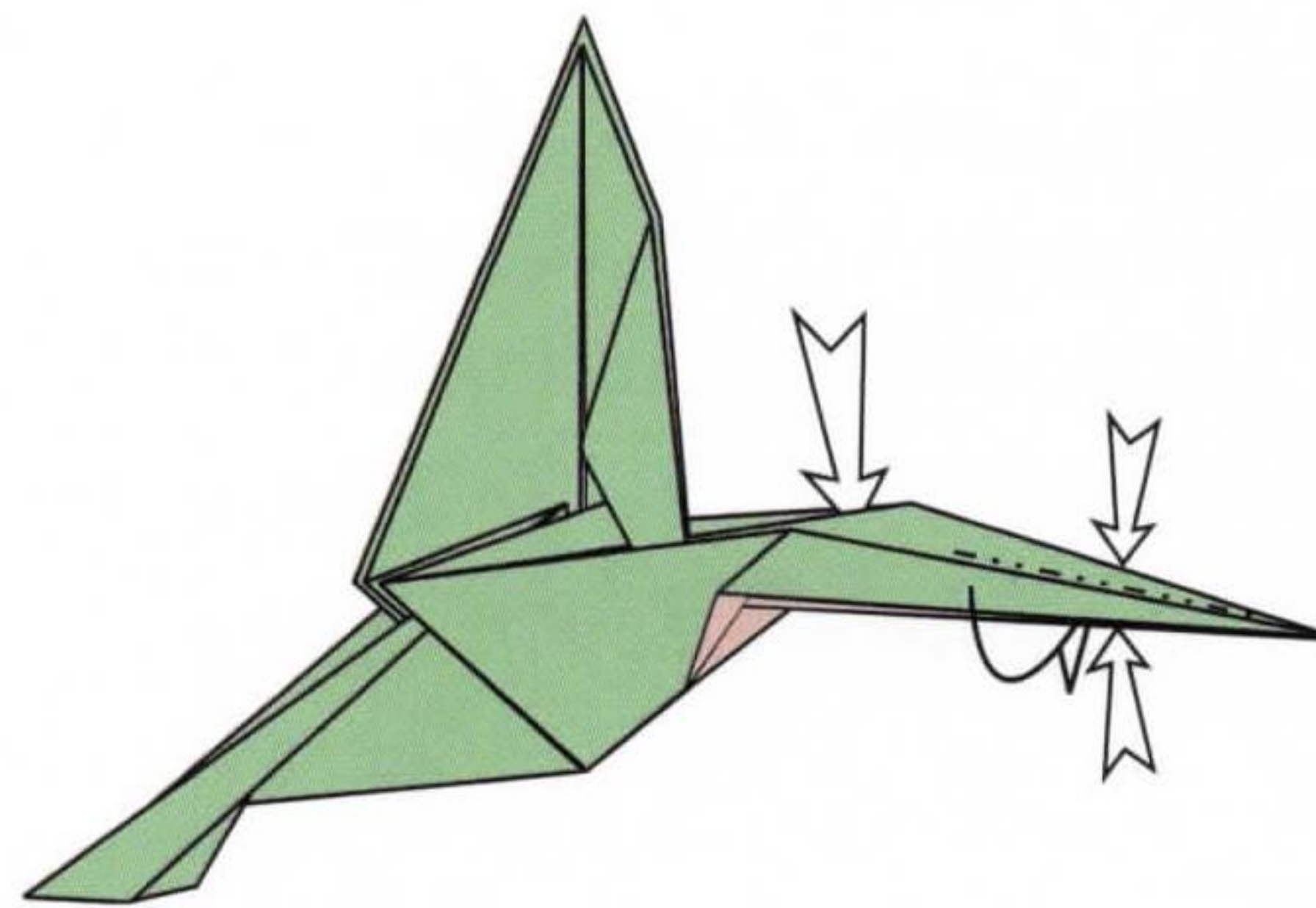
21. Bring out the layers from beneath.



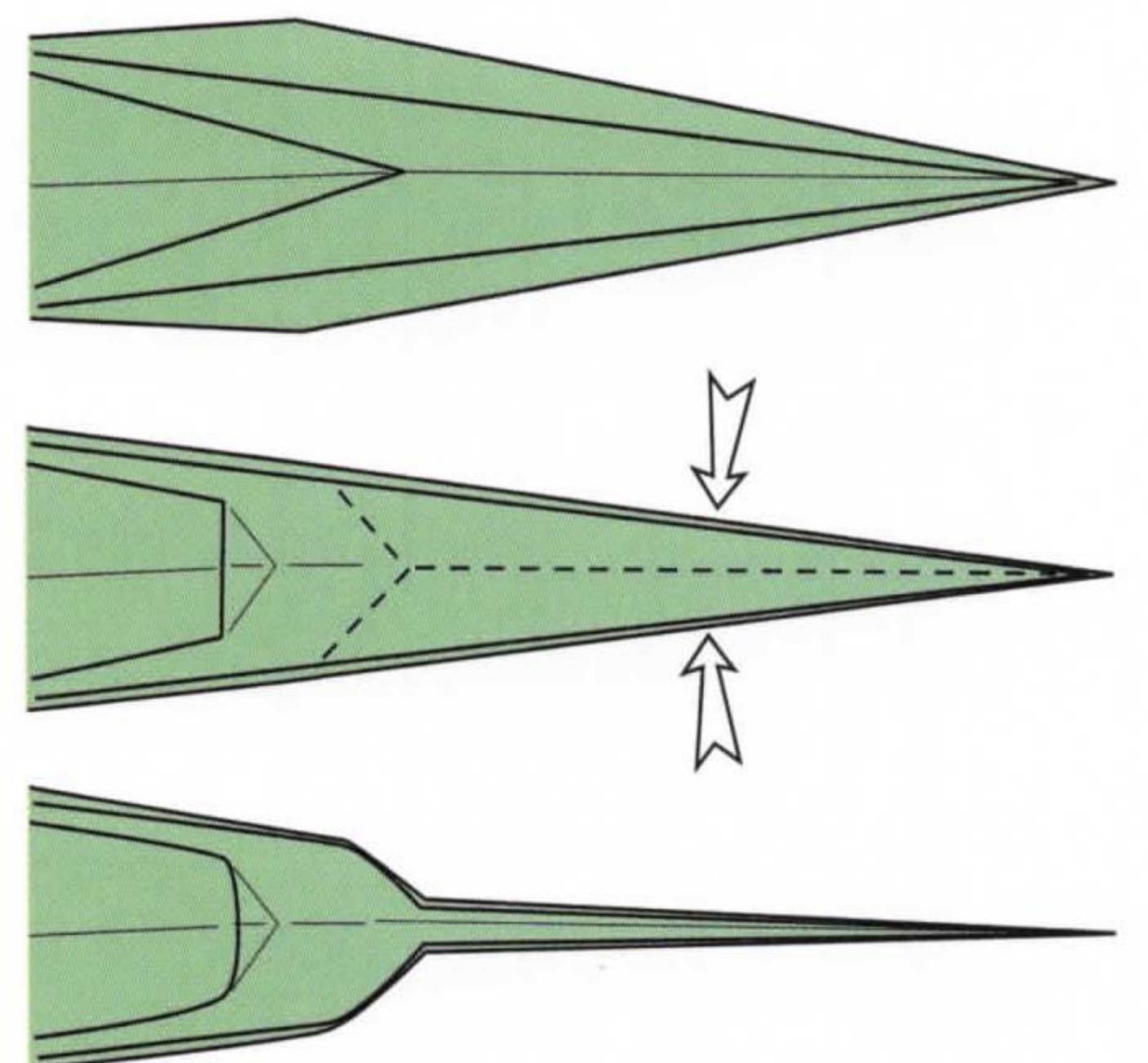
22. Fold up on each side.



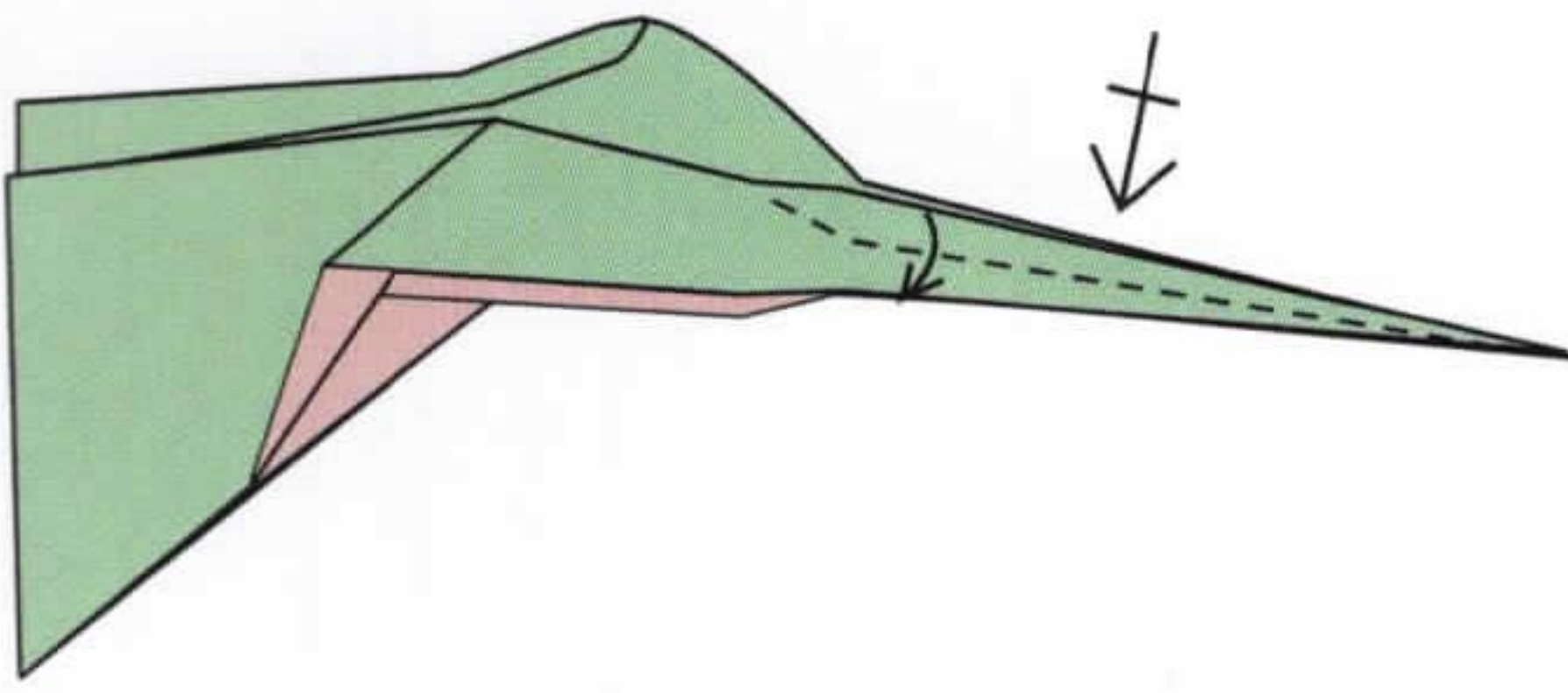
23. Swivel the red throat layer back as the top edge is brought down. Narrow each wing by folding the leading edges backward.



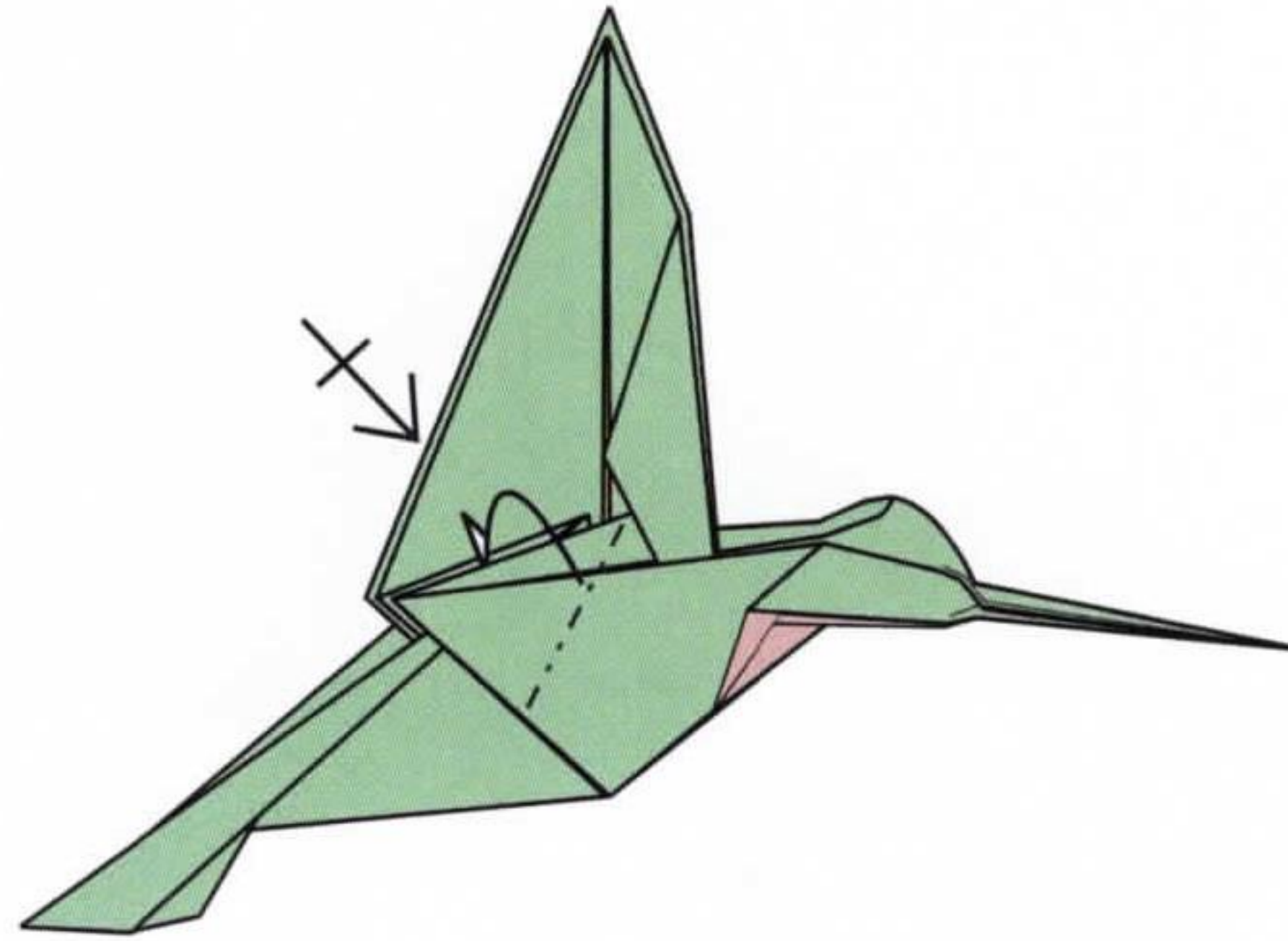
24. Sink the top front paper on the bill to narrow the point.



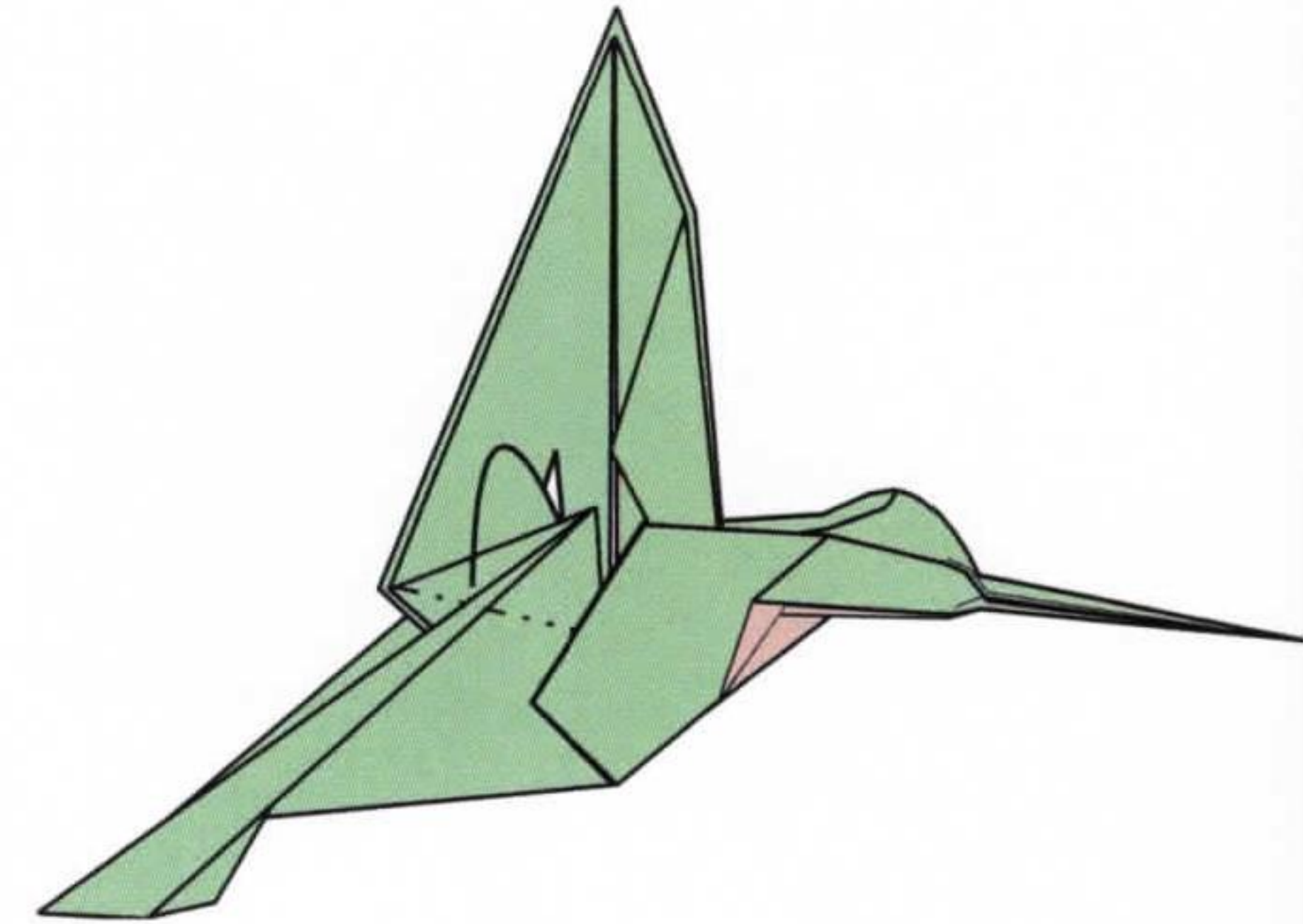
25. Top view of the bill. Compress the sides of the bill by pinching in the indicated valley folds.



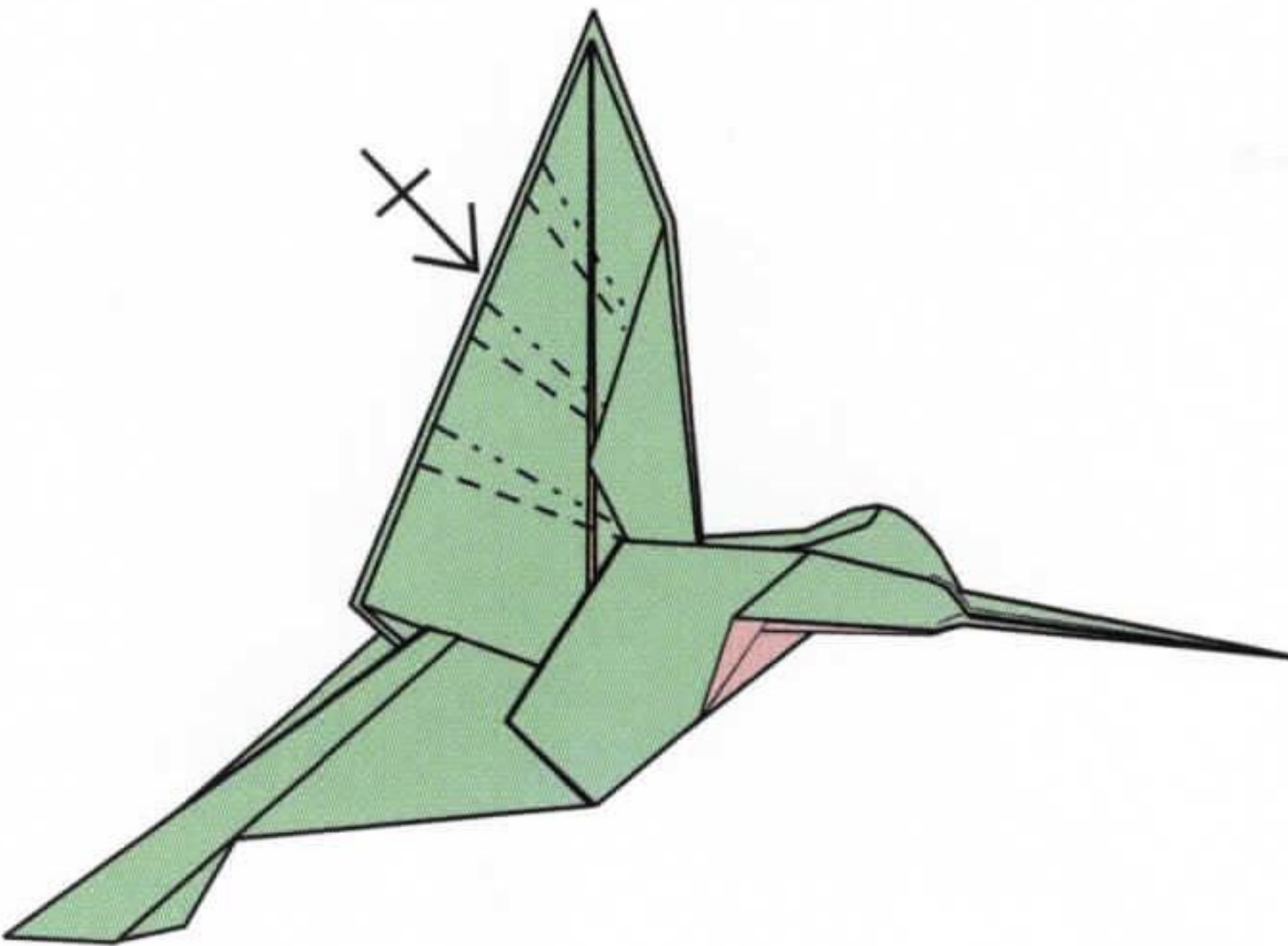
26. Fold each side of the bill down to make it slender.



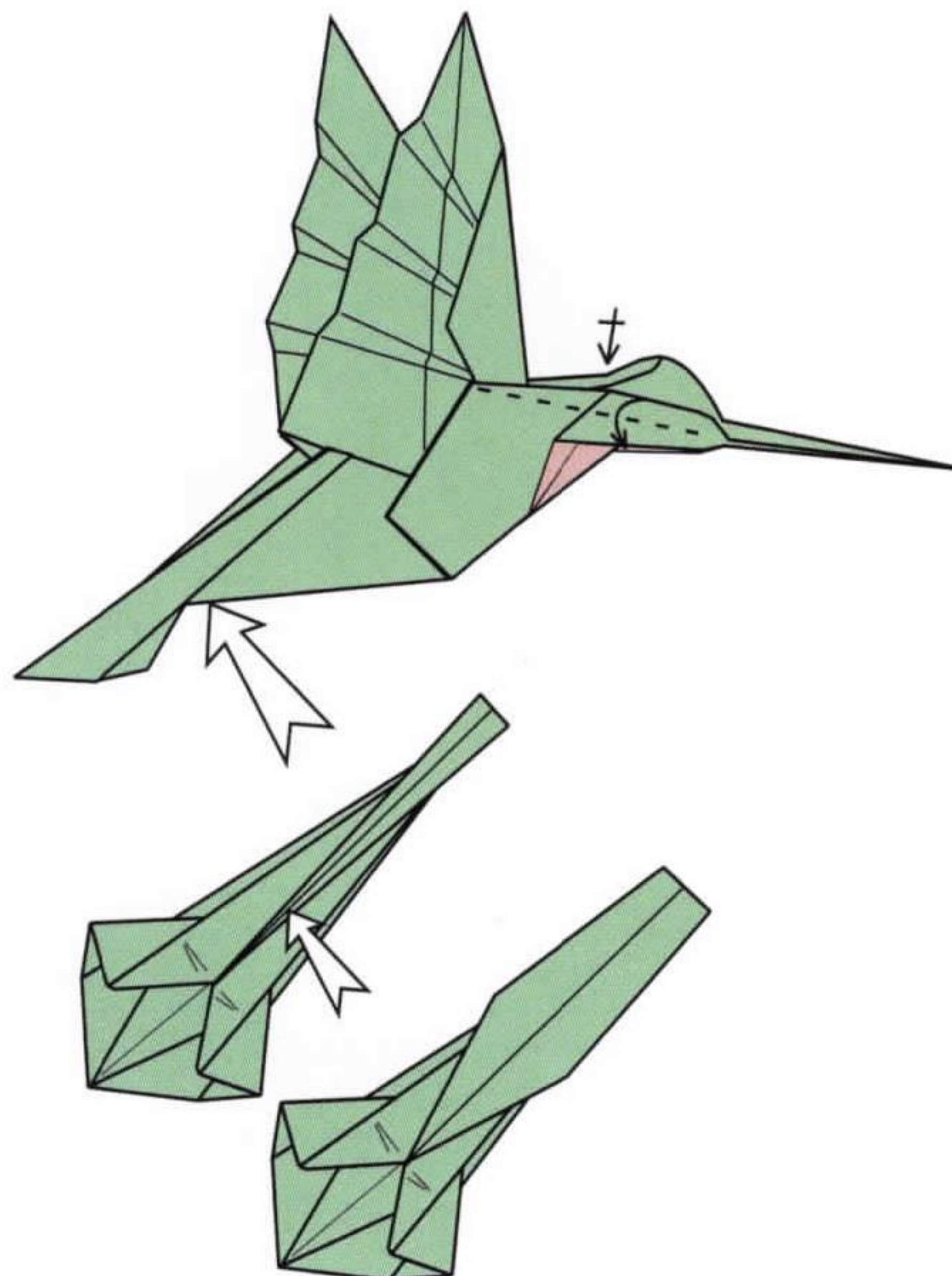
27. Mountain-fold the indicated corner behind. Repeat on the other side.



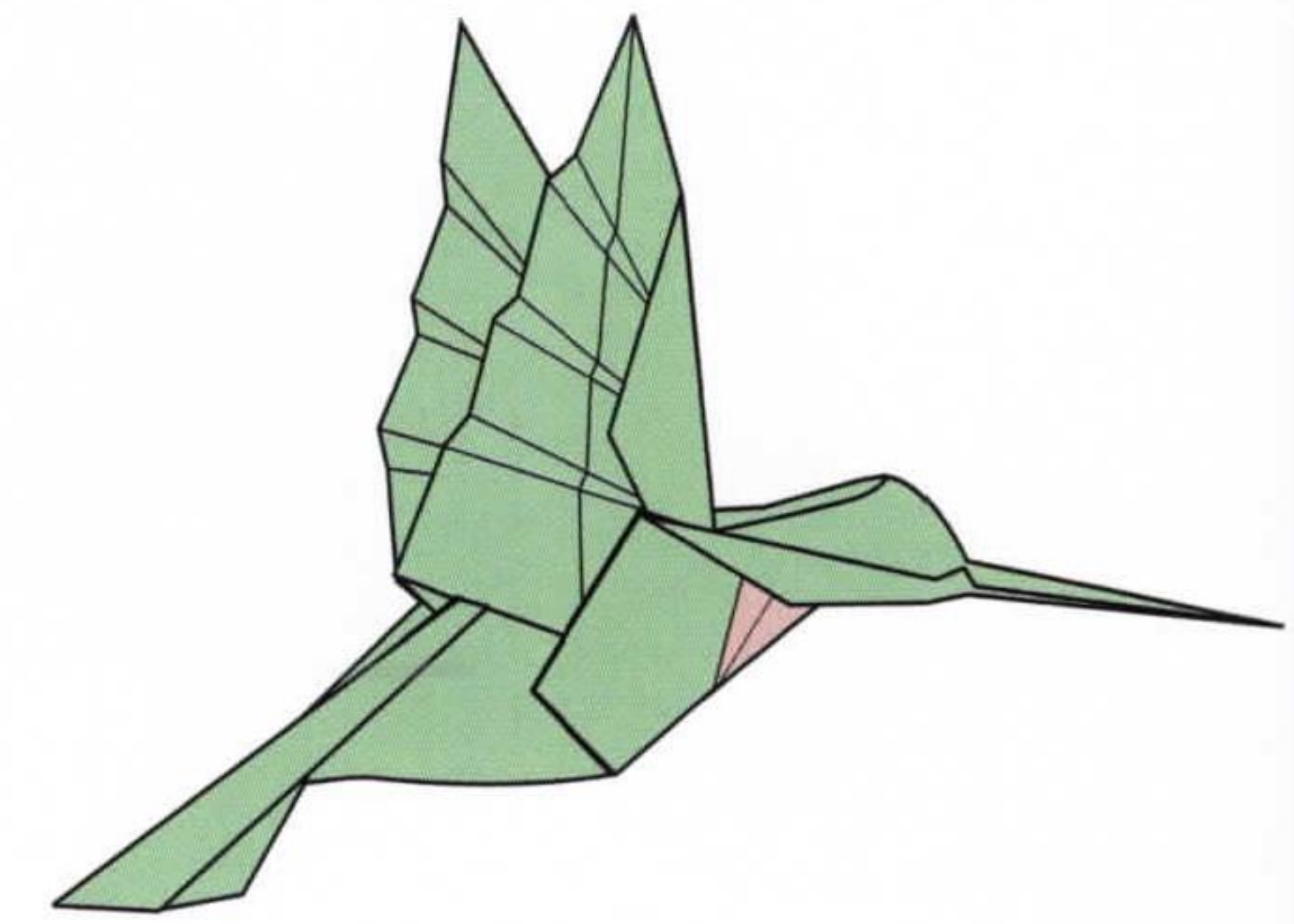
28. Mountain-fold the indicated corner down. Repeat on the other side.



29. Pleat the wings with alternating mountains and valleys.



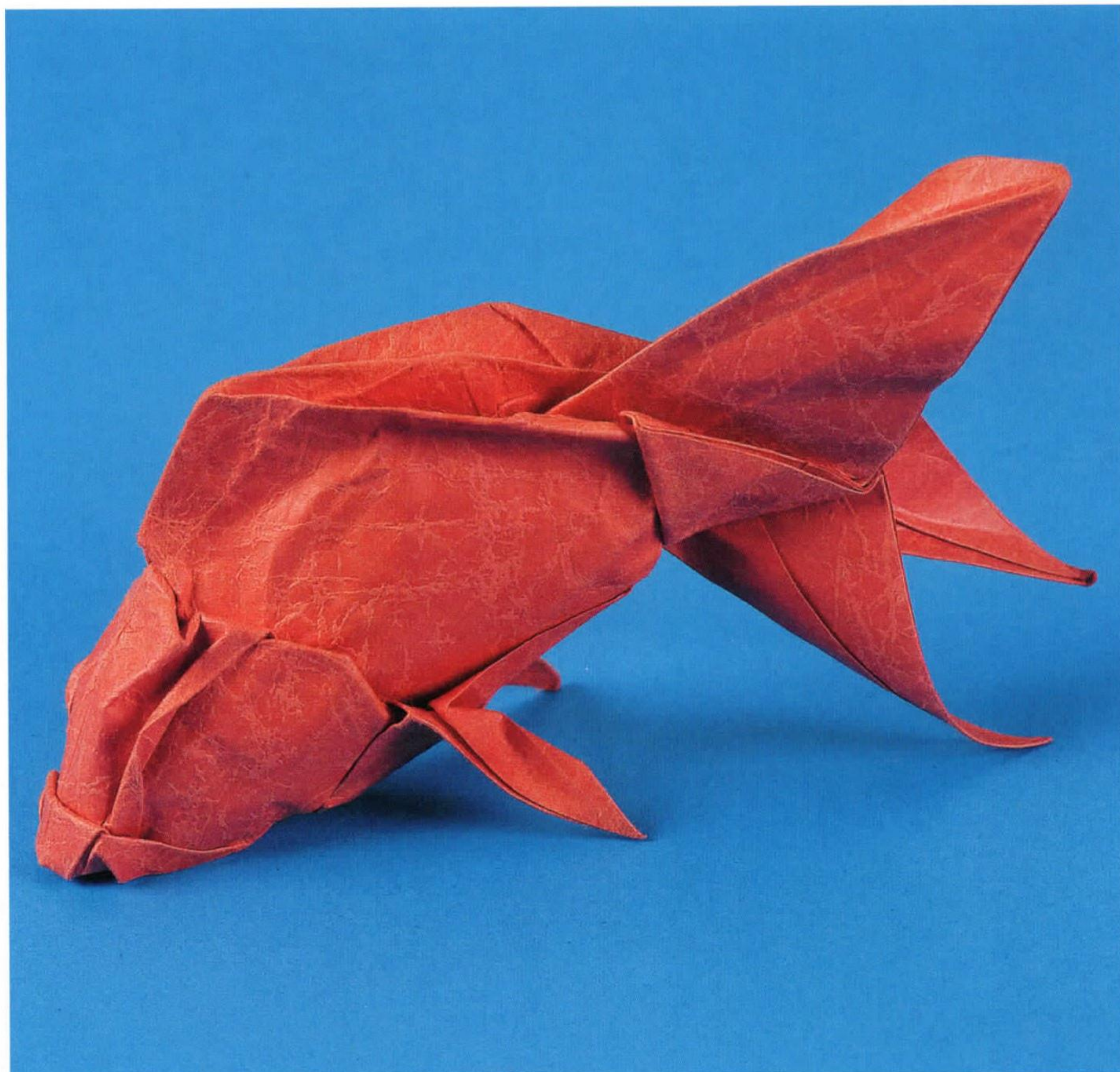
30. Narrow the cheek by folding the outer flaps down. Pinch the back of the body, near the underside of the tail, to flatten and shape it. The body will plump up and become more graceful.



31. The finished Ruby-Throated Hummingbird.

goldfish

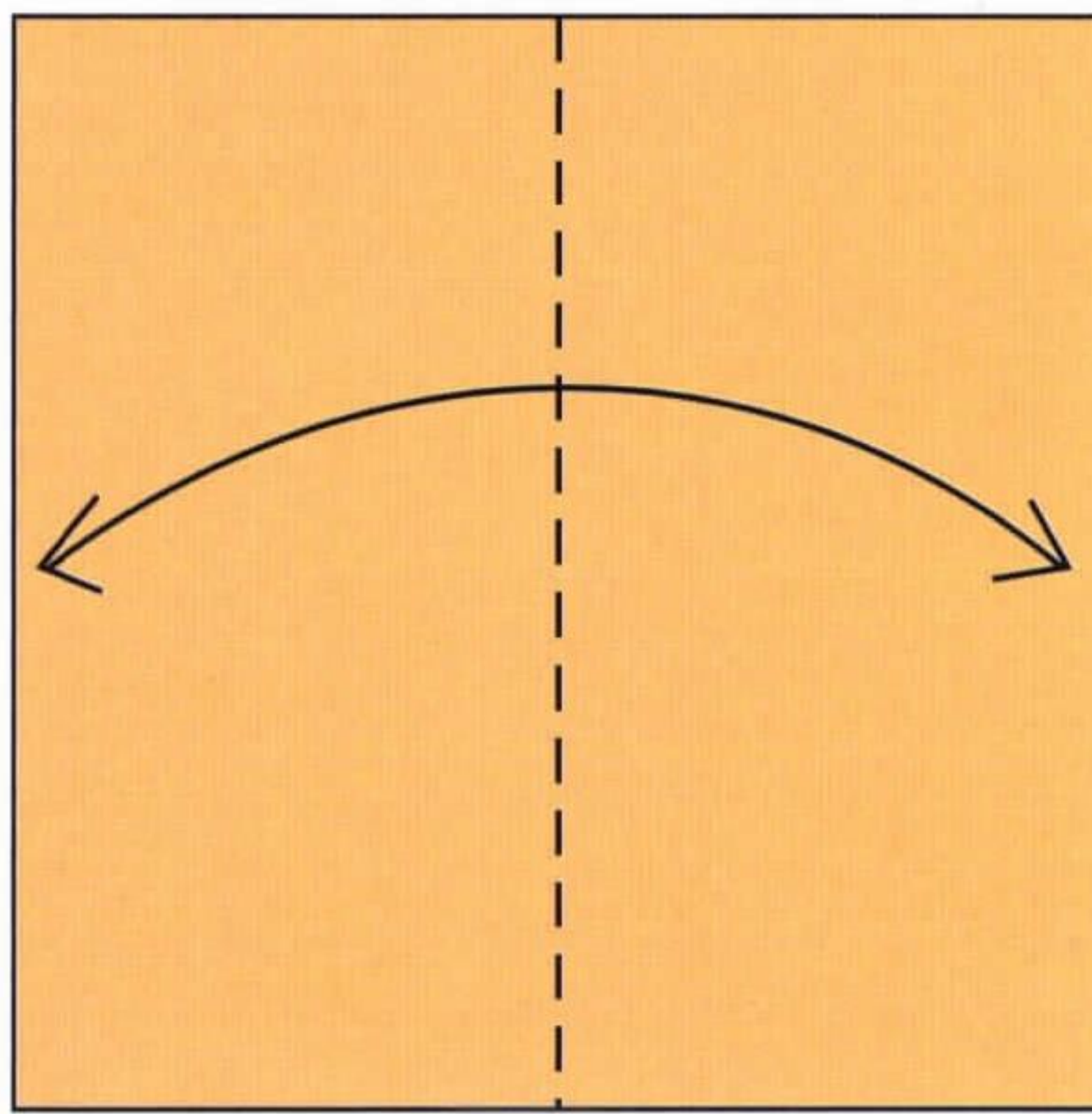
Designed by Michael G. LaFosse



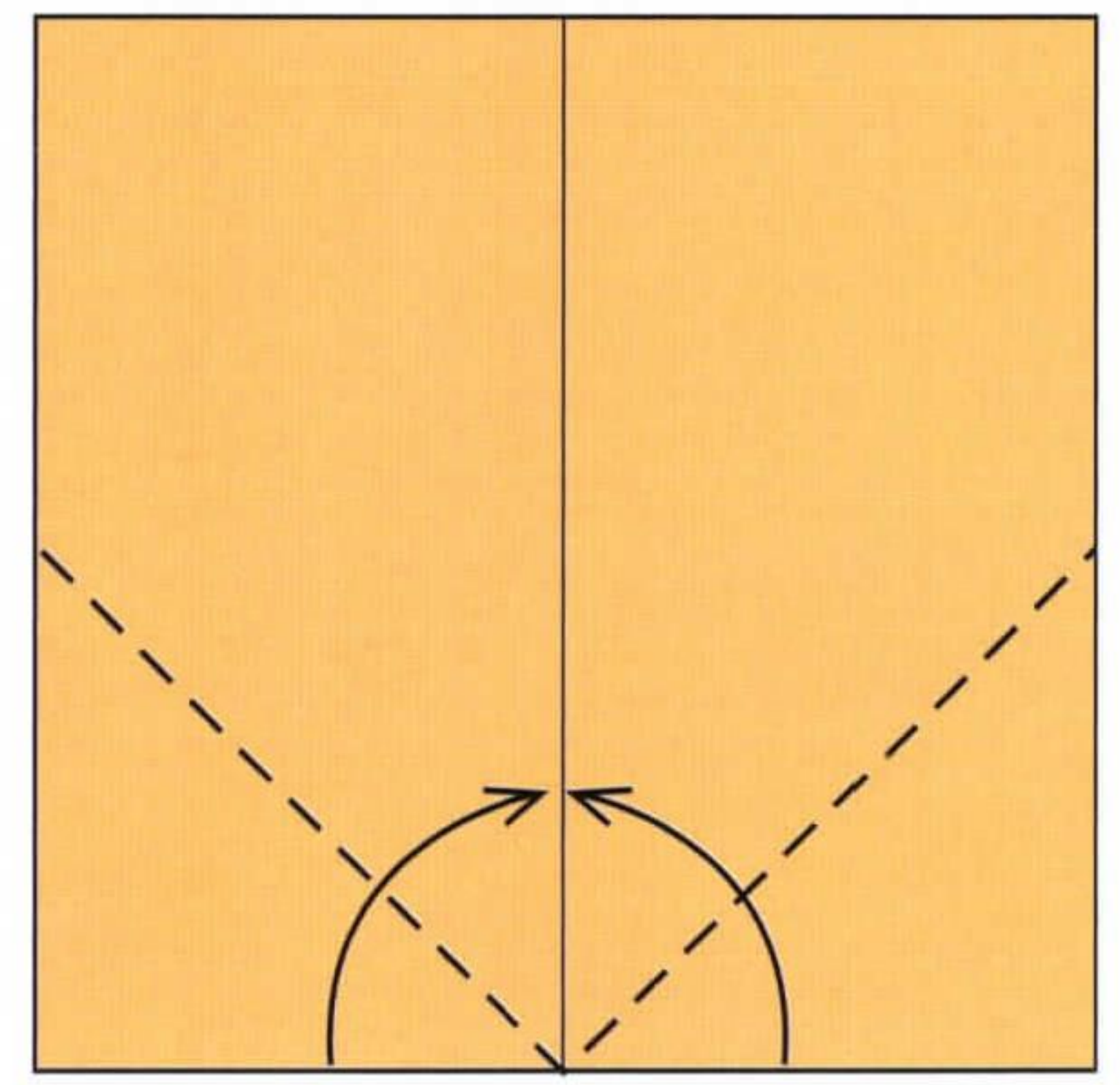
This origami sculpture was created in a moment of inspired spontaneity. There were no preliminary sketches or rehearsals. Akira Yoshizawa had given me an orange piece of paper. To me, it seemed to say “goldfish,” and so it became one in my hands! Sometimes a model just designs itself. I know that three hours passed when I folded this piece, but I was not mindful of the actual folding sequence. I realized afterward how focused I must have been to respond to the paper as it was being folded. If possible, spend some time observing live goldfish. Proportion, shaping, subtlety and elegance will happen at the tips of your thumb and index finger. As you finish this model, your fingers will be folding paper not unlike a charcoal artist’s fluid and delicate sketching. Your origami model should exhibit your understanding of this animal’s form and activity. As soon as this quality emerges, stop! Do not overwork this model.

PAPER SUGGESTIONS

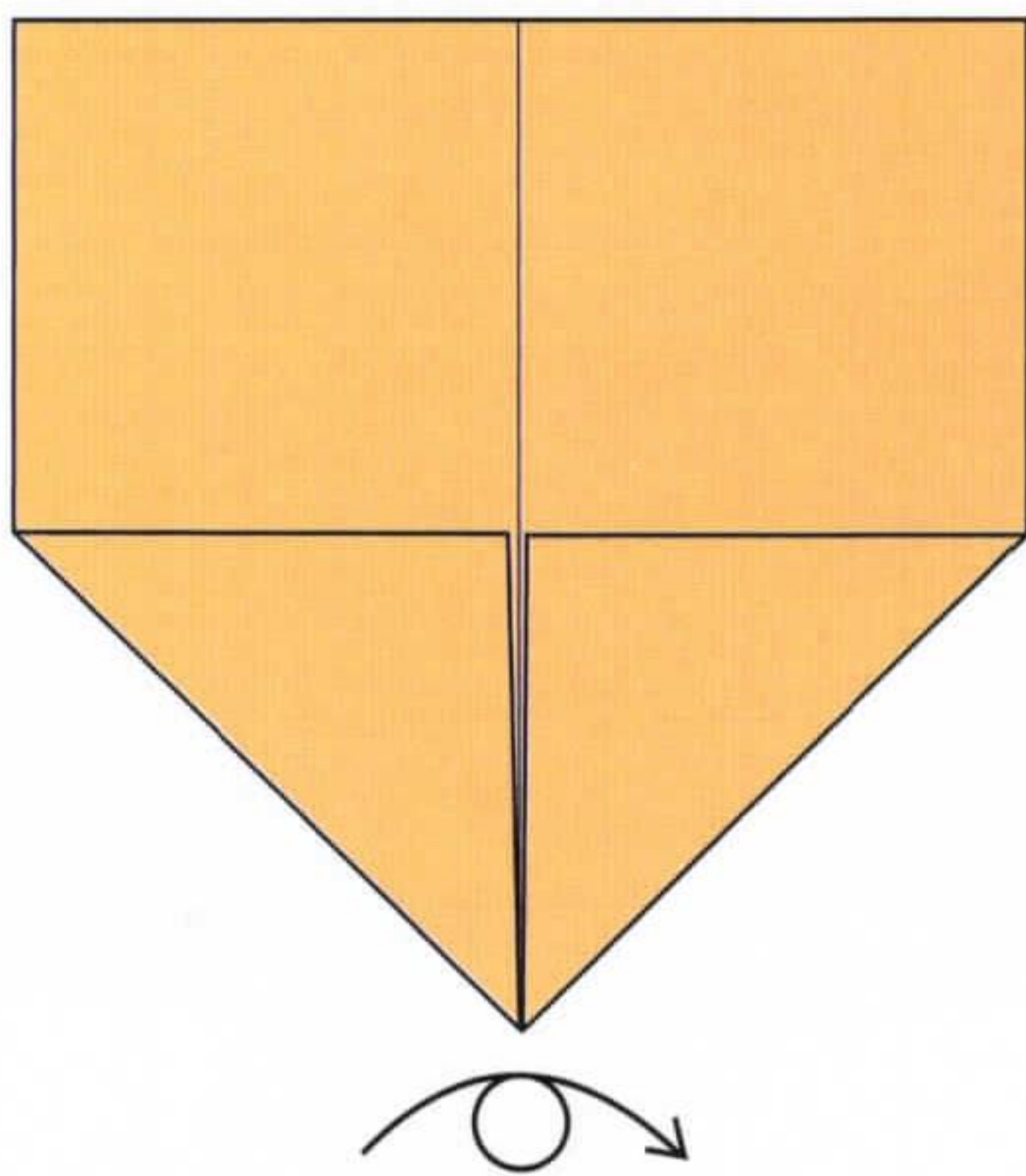
For wet-folding, use a thin paper that is heavily sized, or back-coat and surface-size an Asian-style paper. The color could be crimson, gold, silver, white or black. You may practice this model in tissue foil. A 9-inch (22.8-cm) square will produce a 5-inch (12.7-cm) fish.



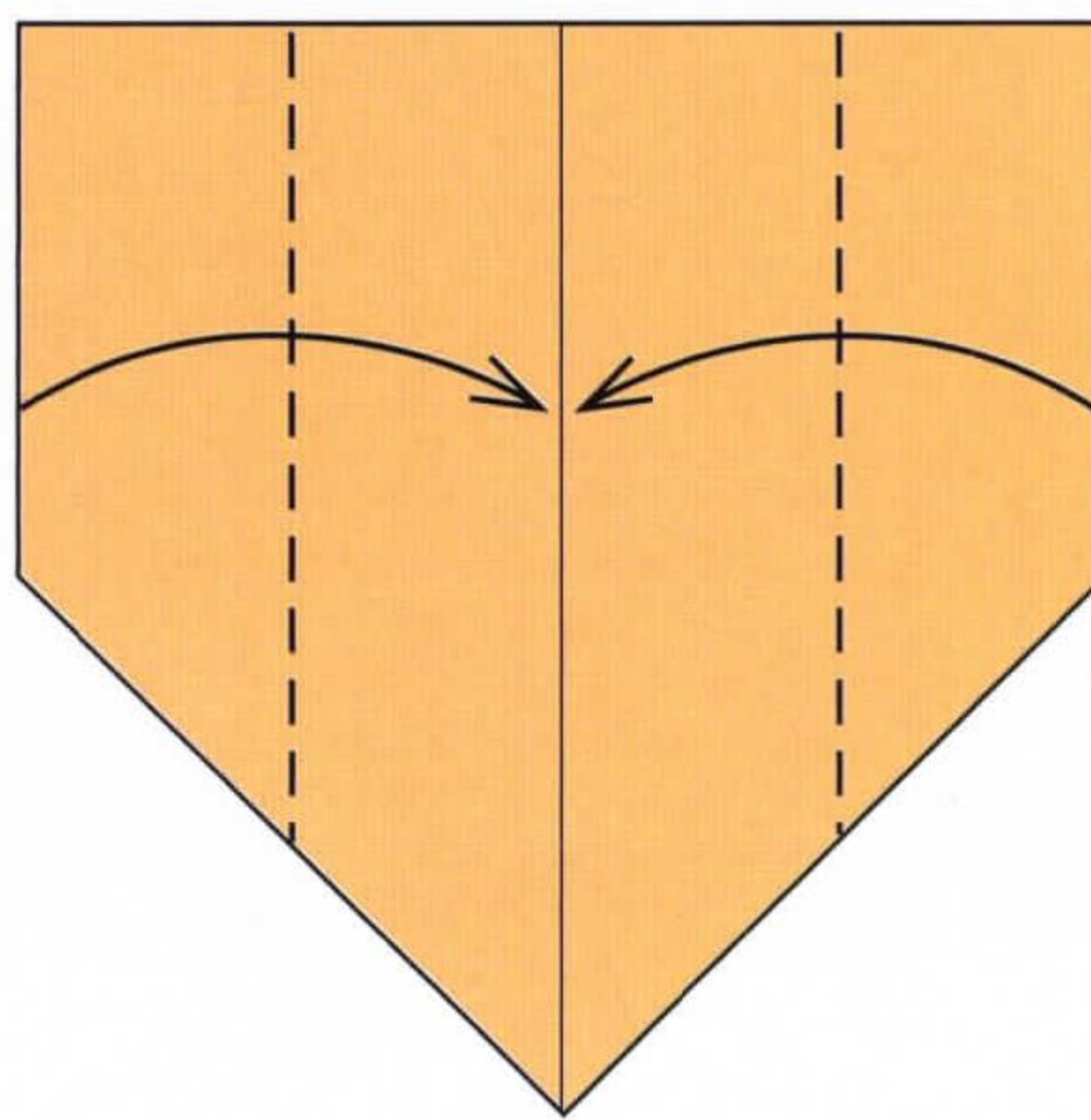
1. Fold in half, edge to edge. Unfold.



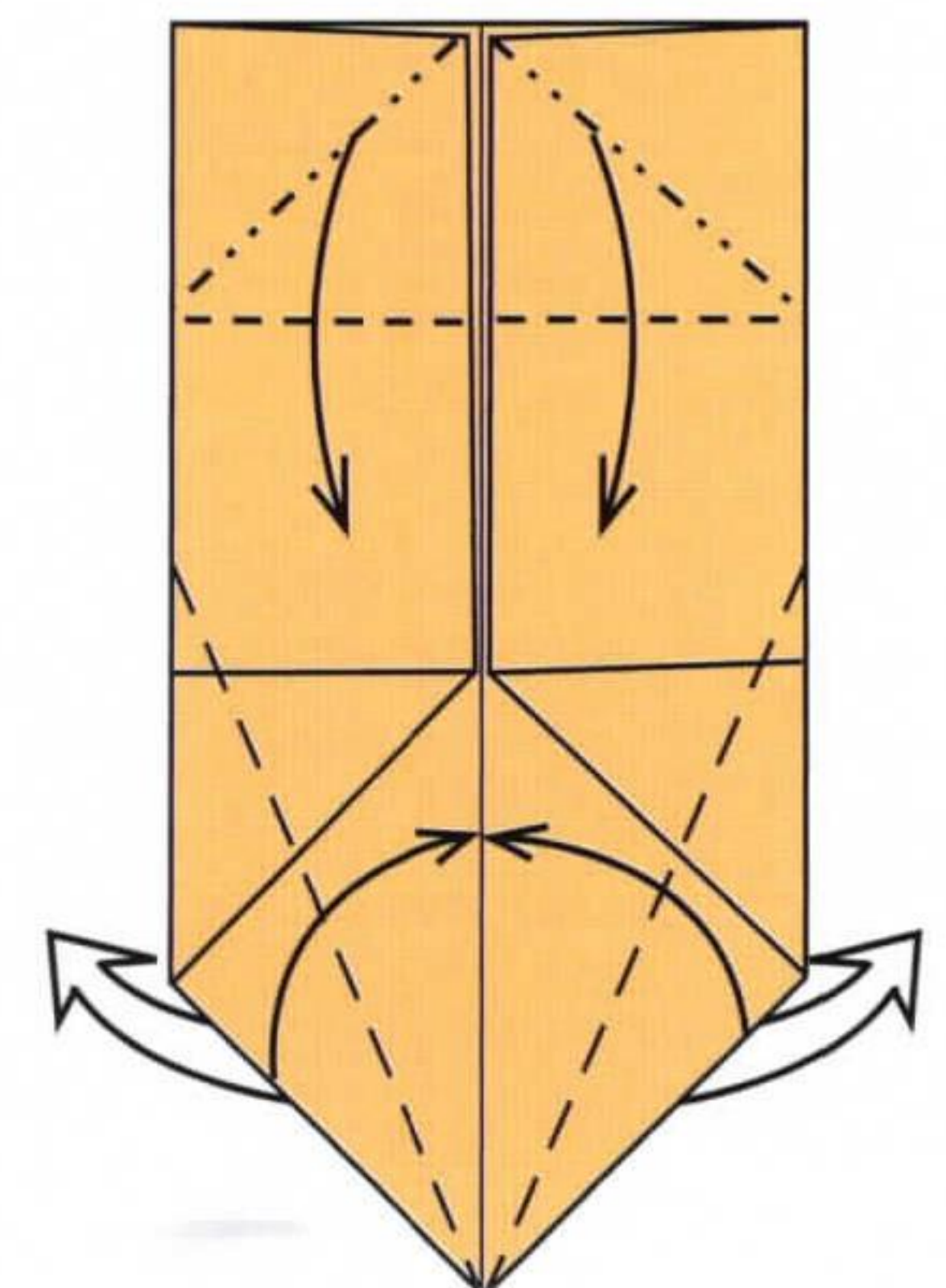
2. Fold the bottom left and right edges to the crease.



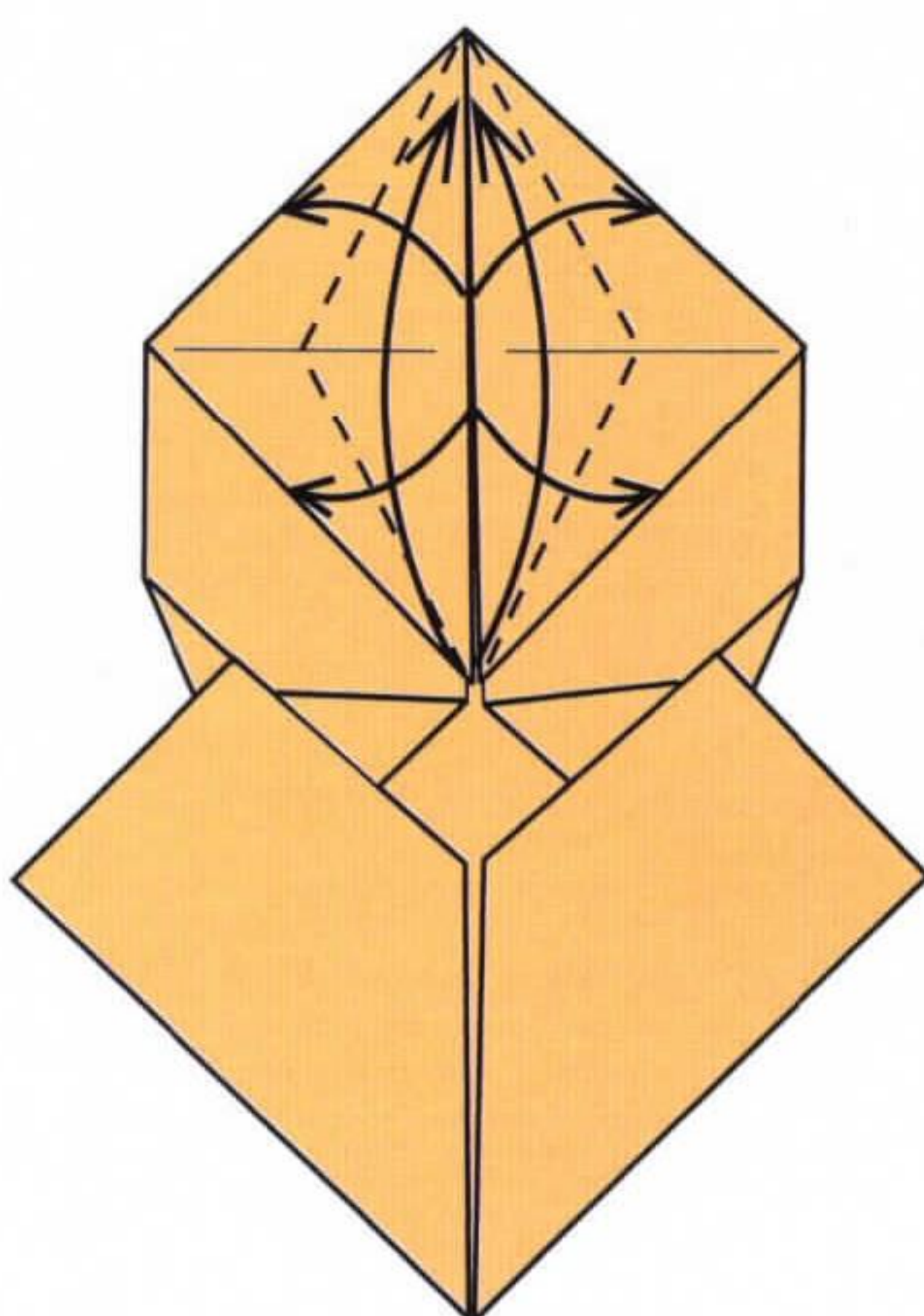
3. Turn the model over, left to right.



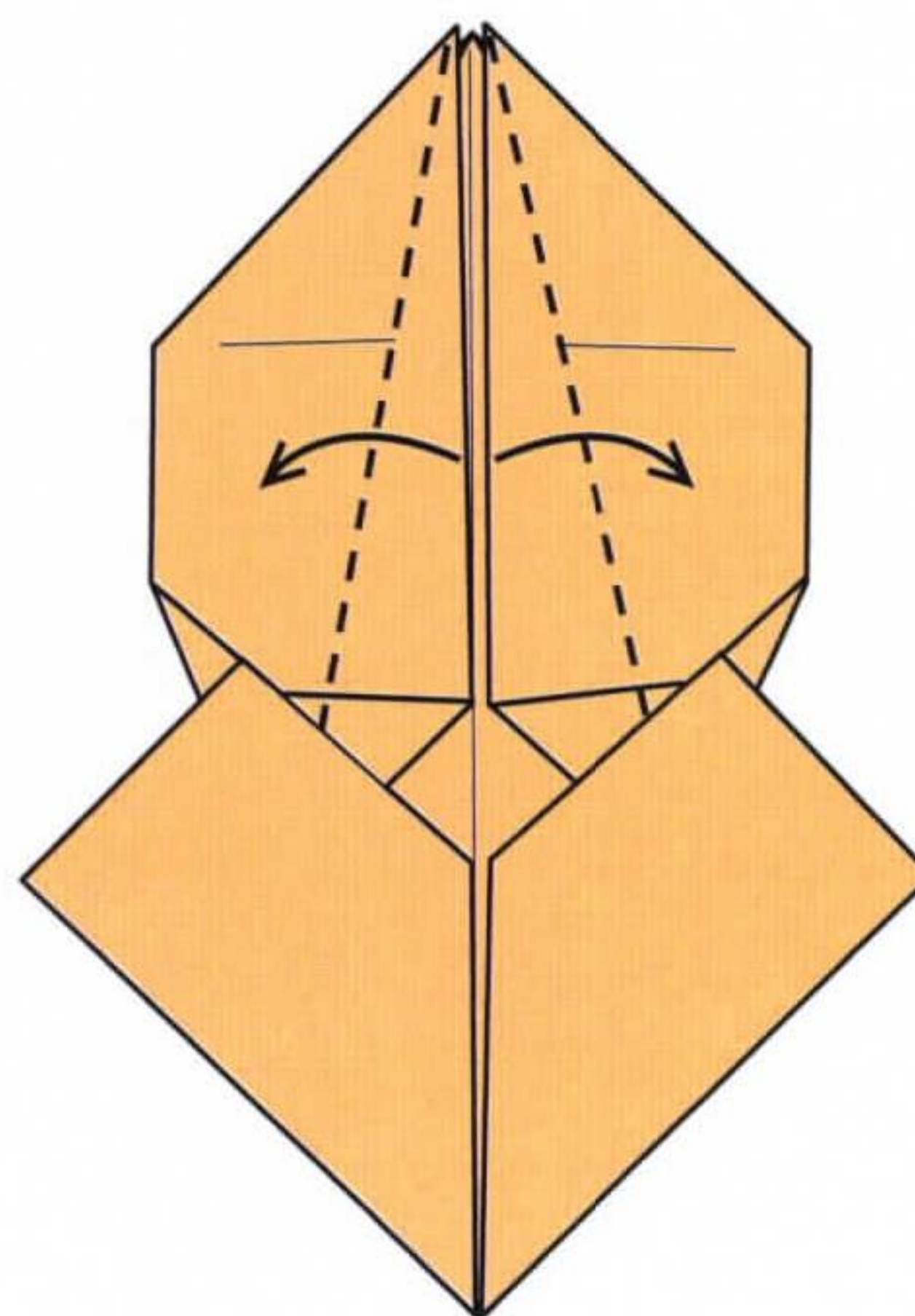
4. Fold the side edges to the center.



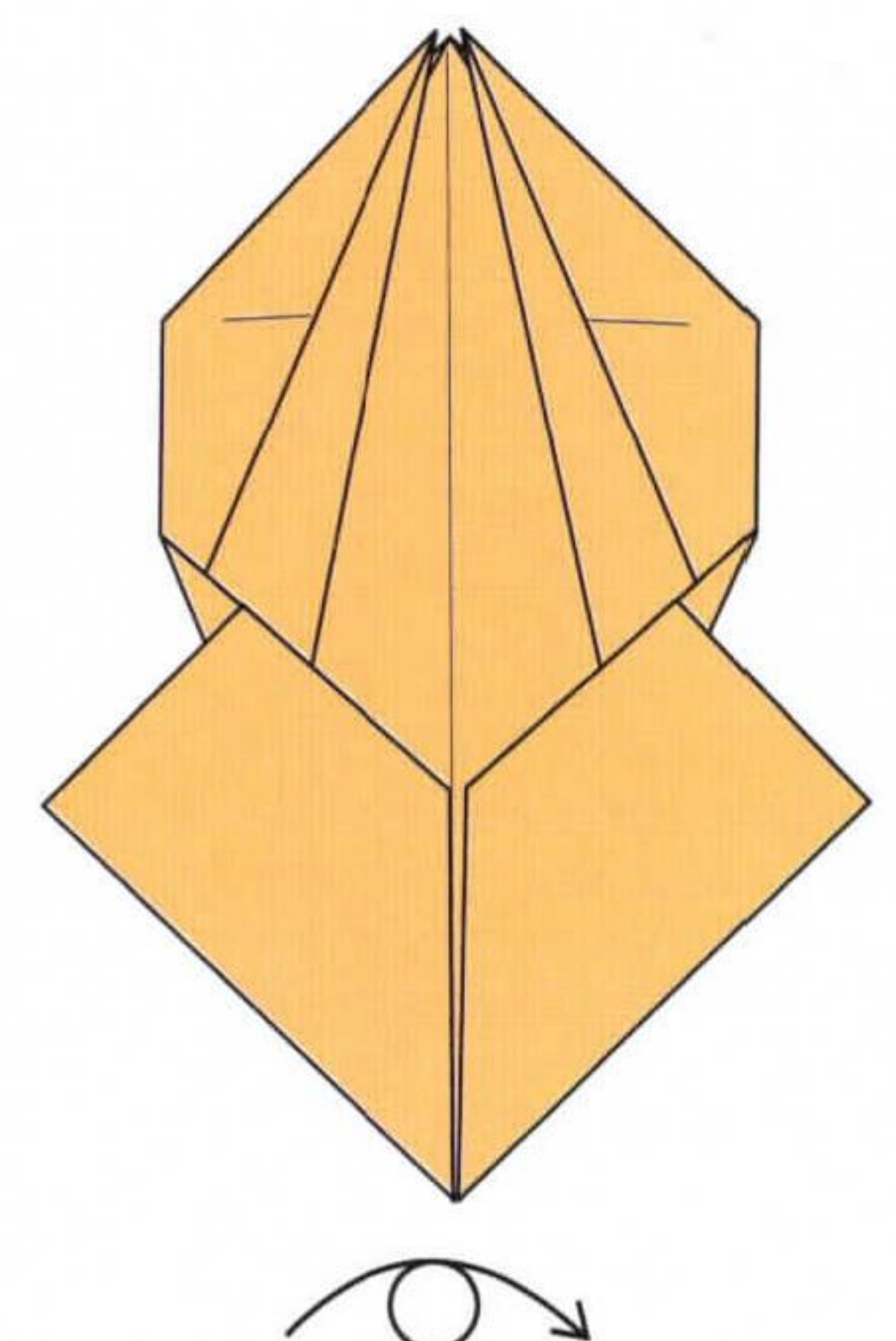
5. Mountain-fold the top corners in half and move down to the center. Fold the bottom edges to the center while allowing the corners from the back to move to the front.



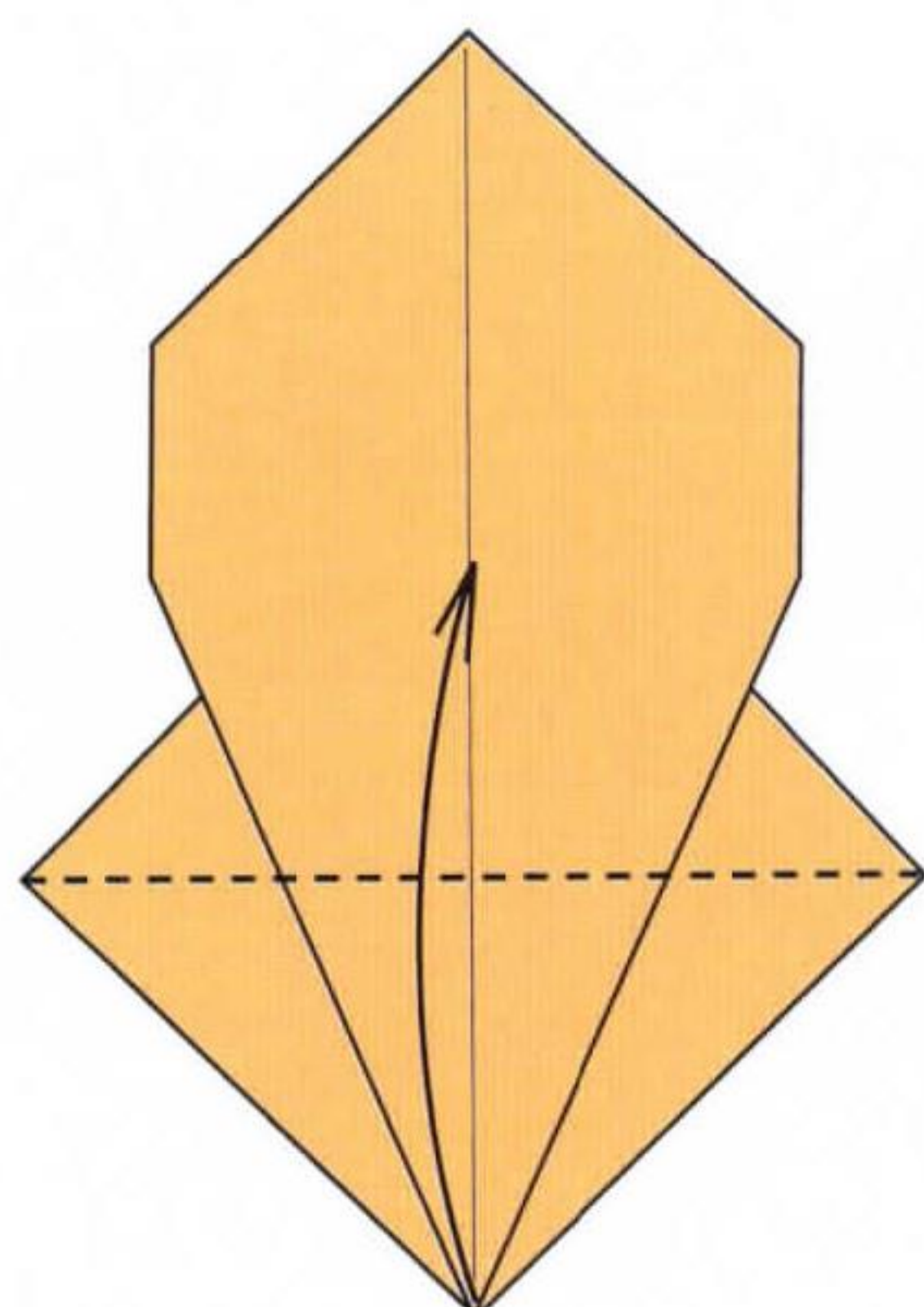
6. Pull out the centers of the upper diamond by bringing the lower points up, valley-folding inside, matching the inside edges to the outside edges.



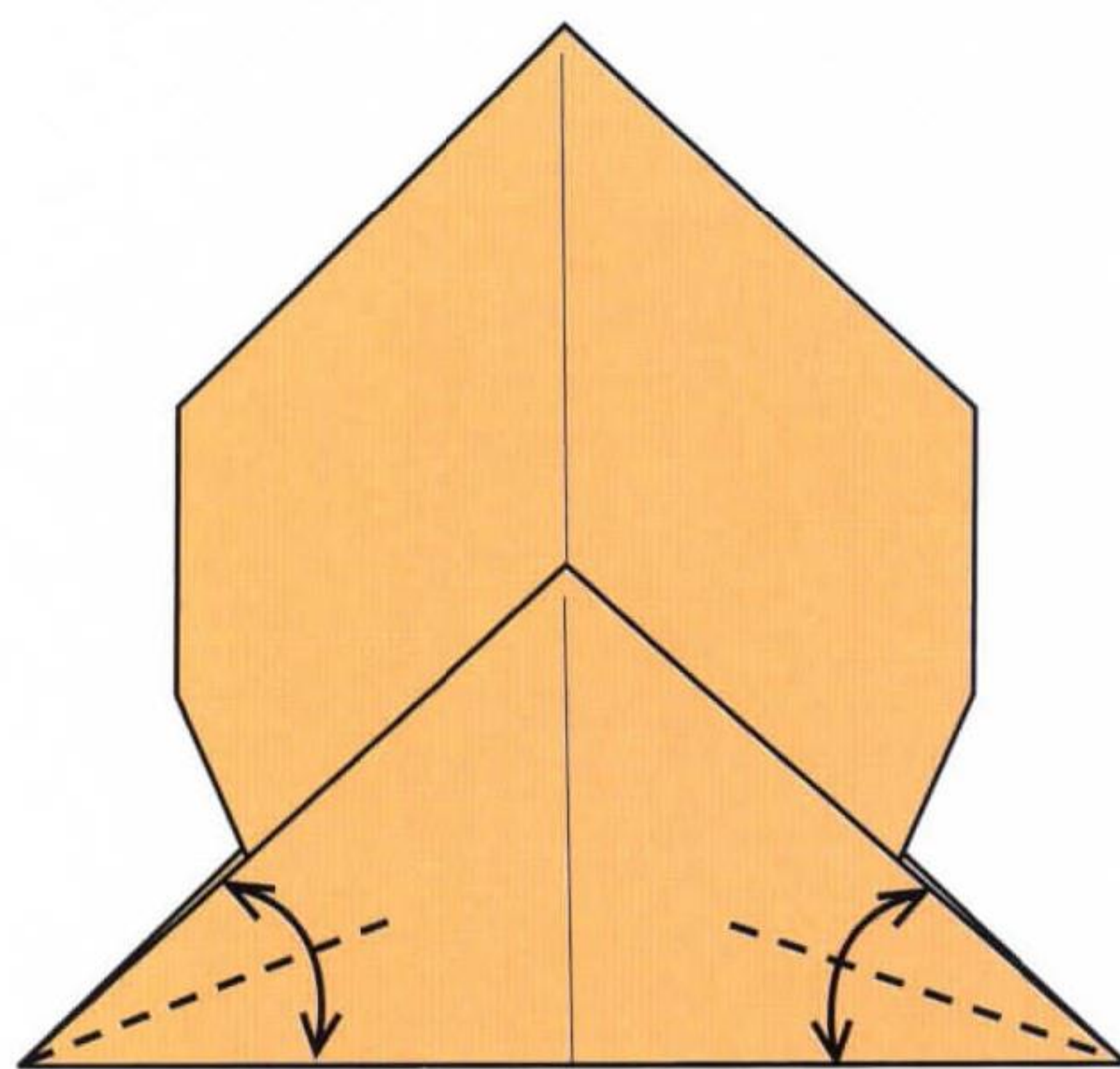
7. Fold the inner flaps outward on both sides.



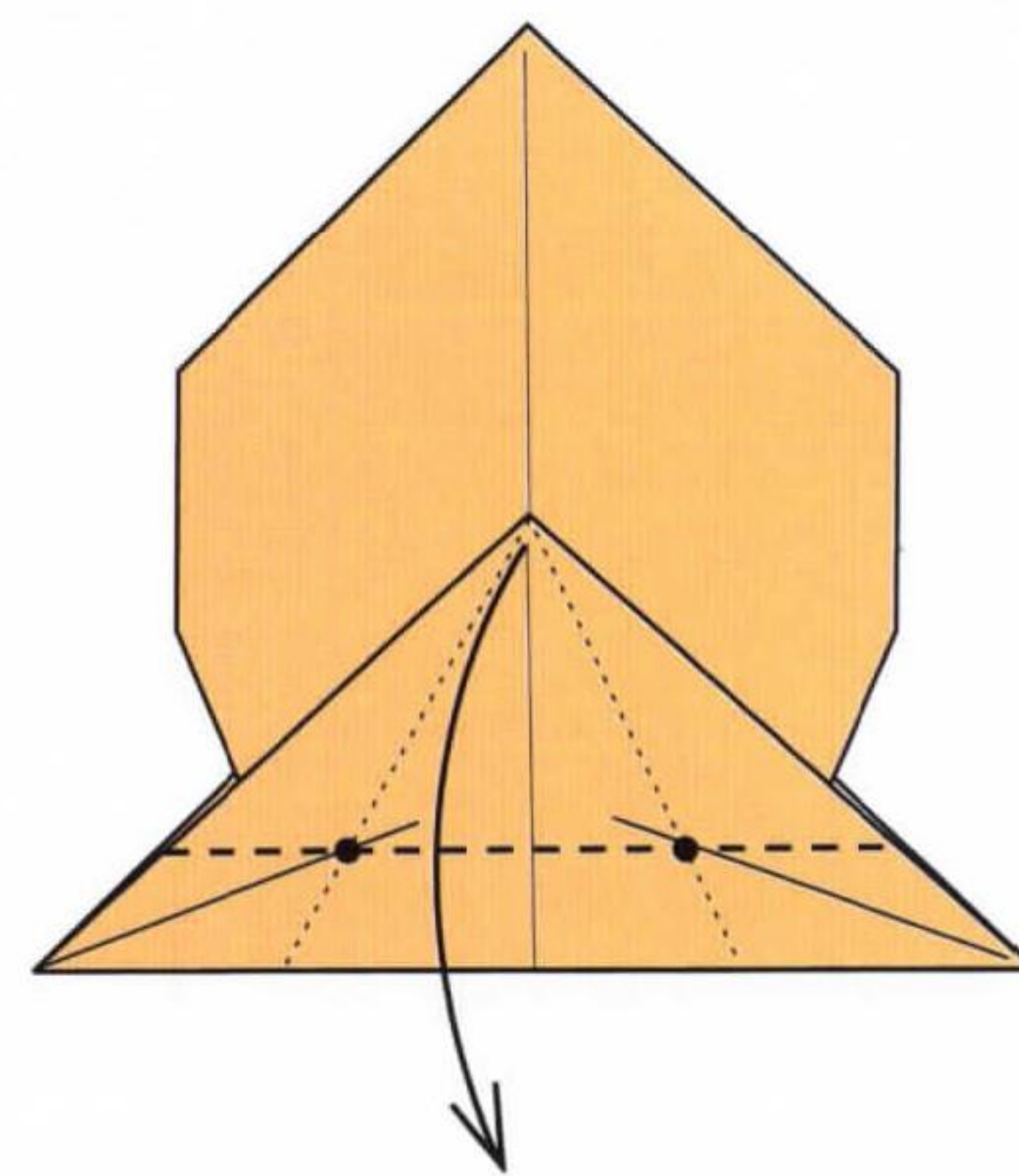
8. Turn the model over, left to right.



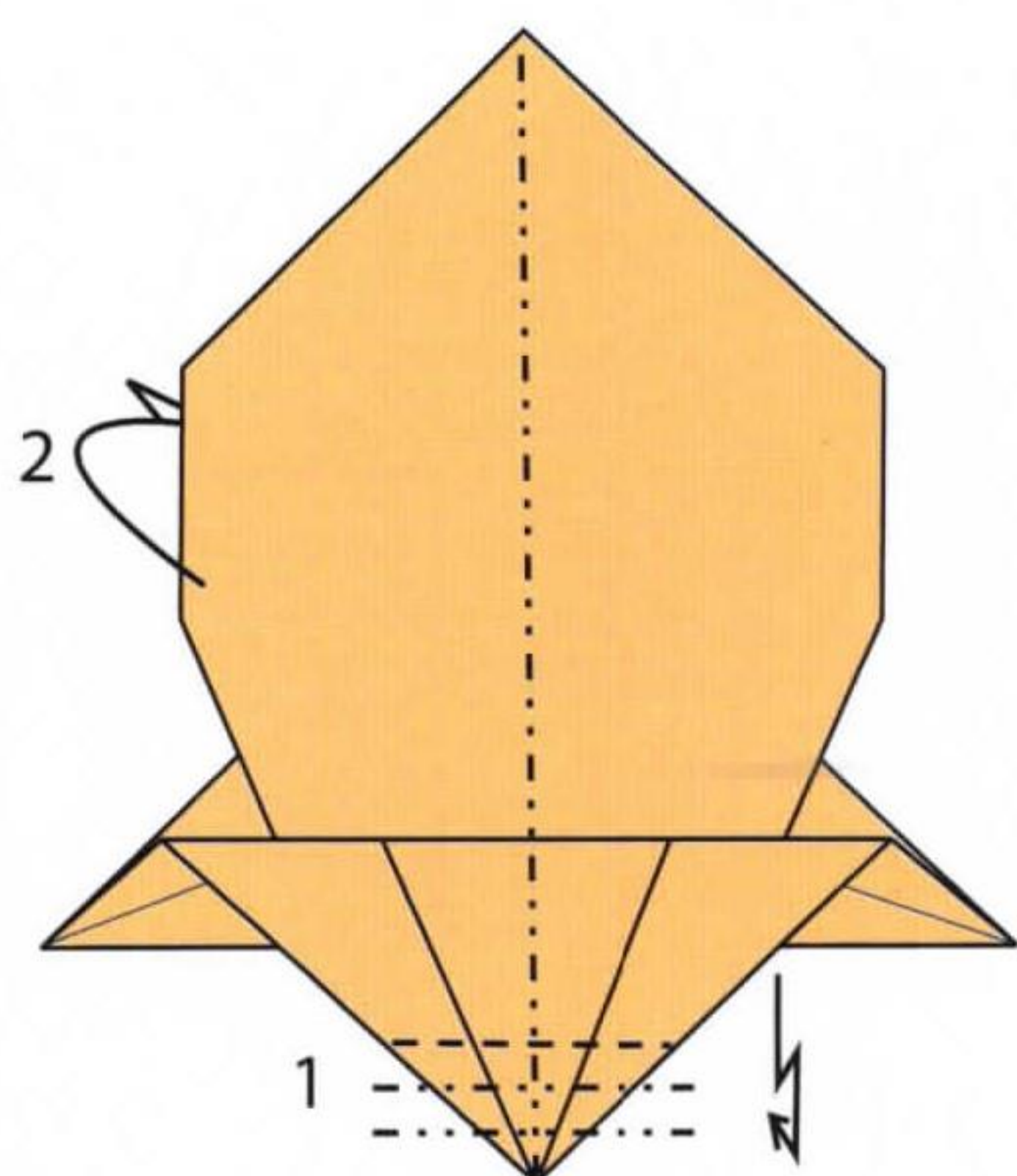
9. Fold the bottom point up, bisecting the left and right square corners.



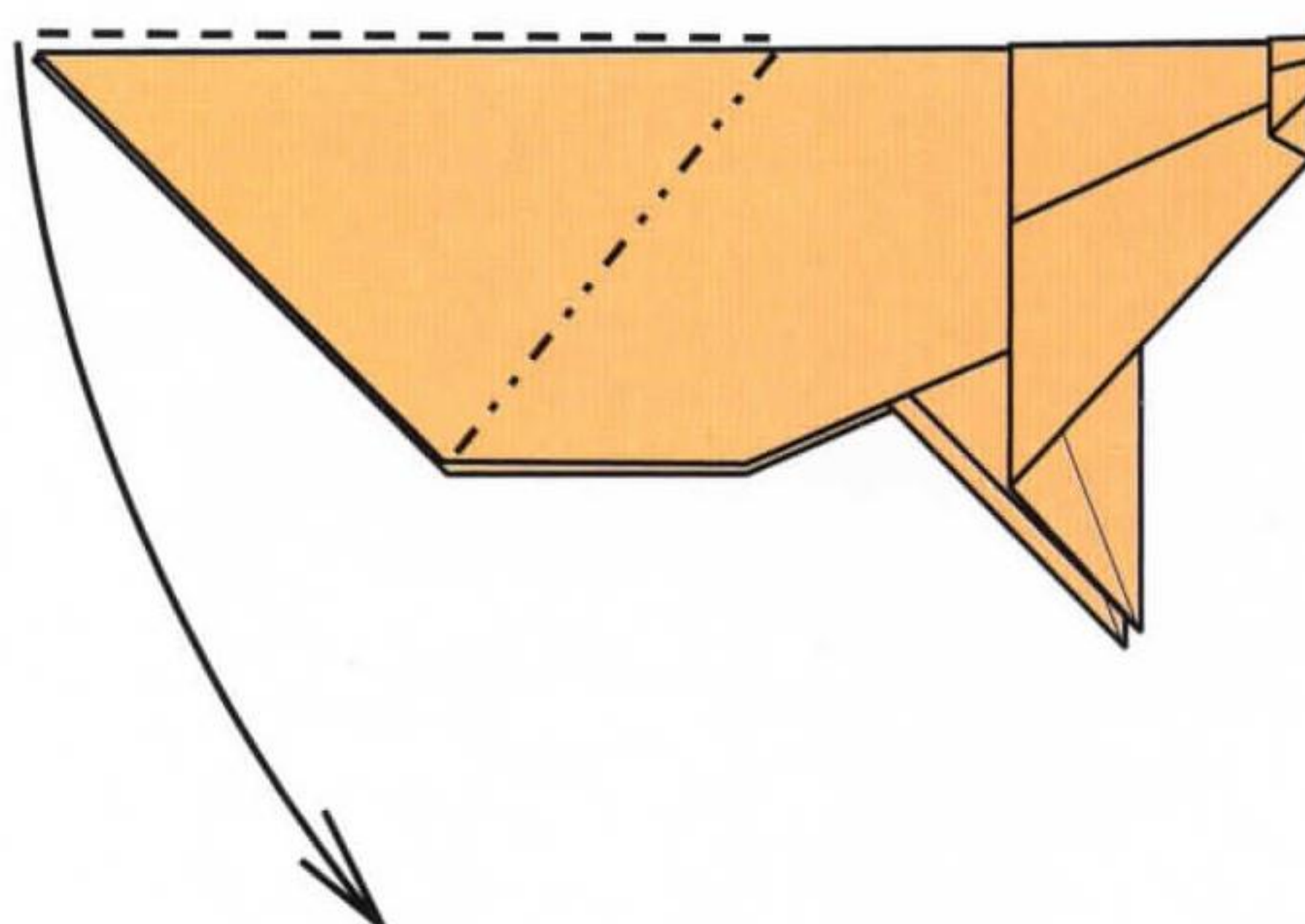
10. Pre-crease the valley bisectors on the bottom left and right corners.



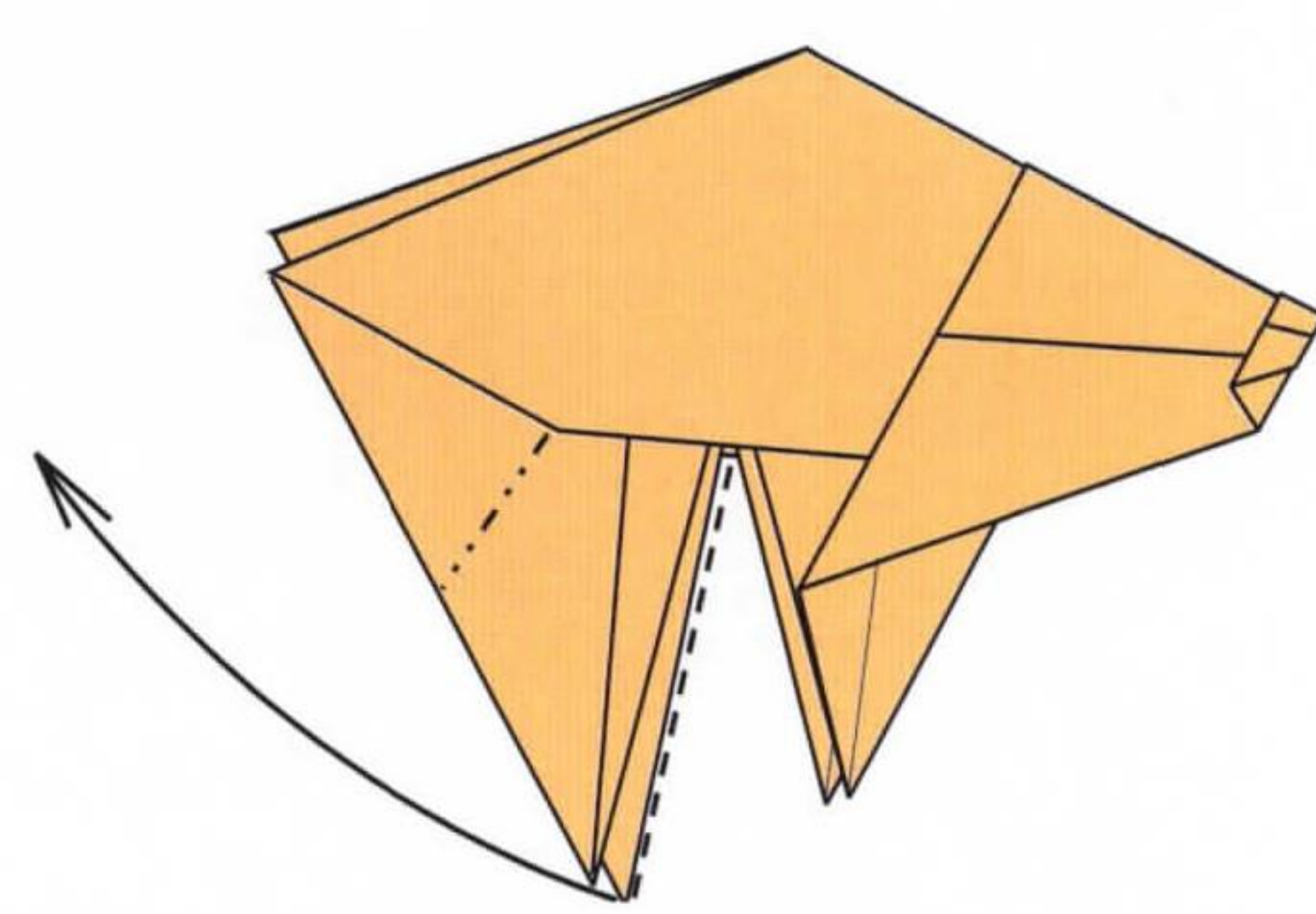
11. Fold the square corner down at the point where the pre-creases from step 10 cross the indicated X-ray view of the folded edges on the other side of the paper.



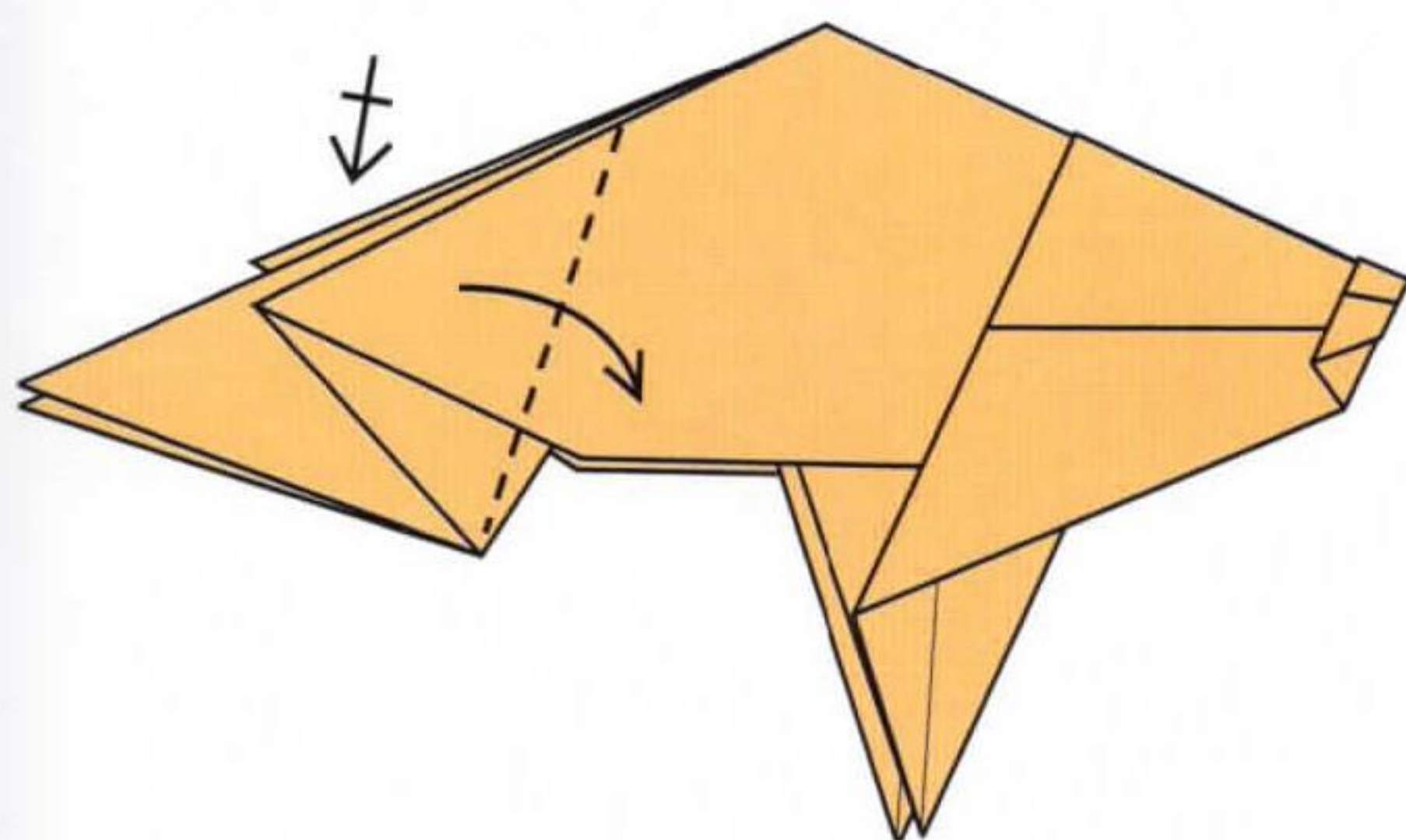
12. Mountain- and valley-fold the fish's lip and nose area. Mountain-fold in half.



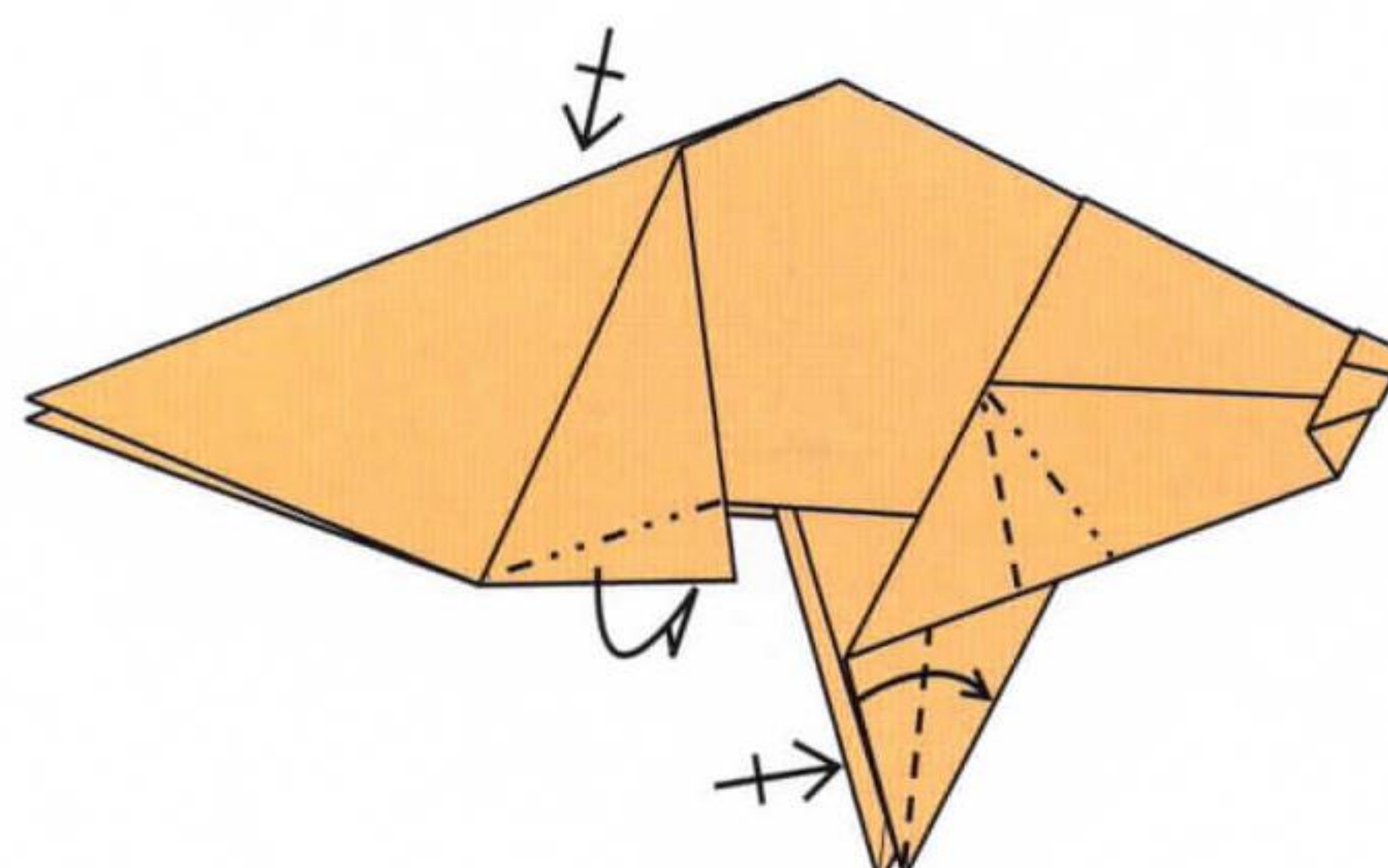
13. Inside-reverse-fold the tail straight down.



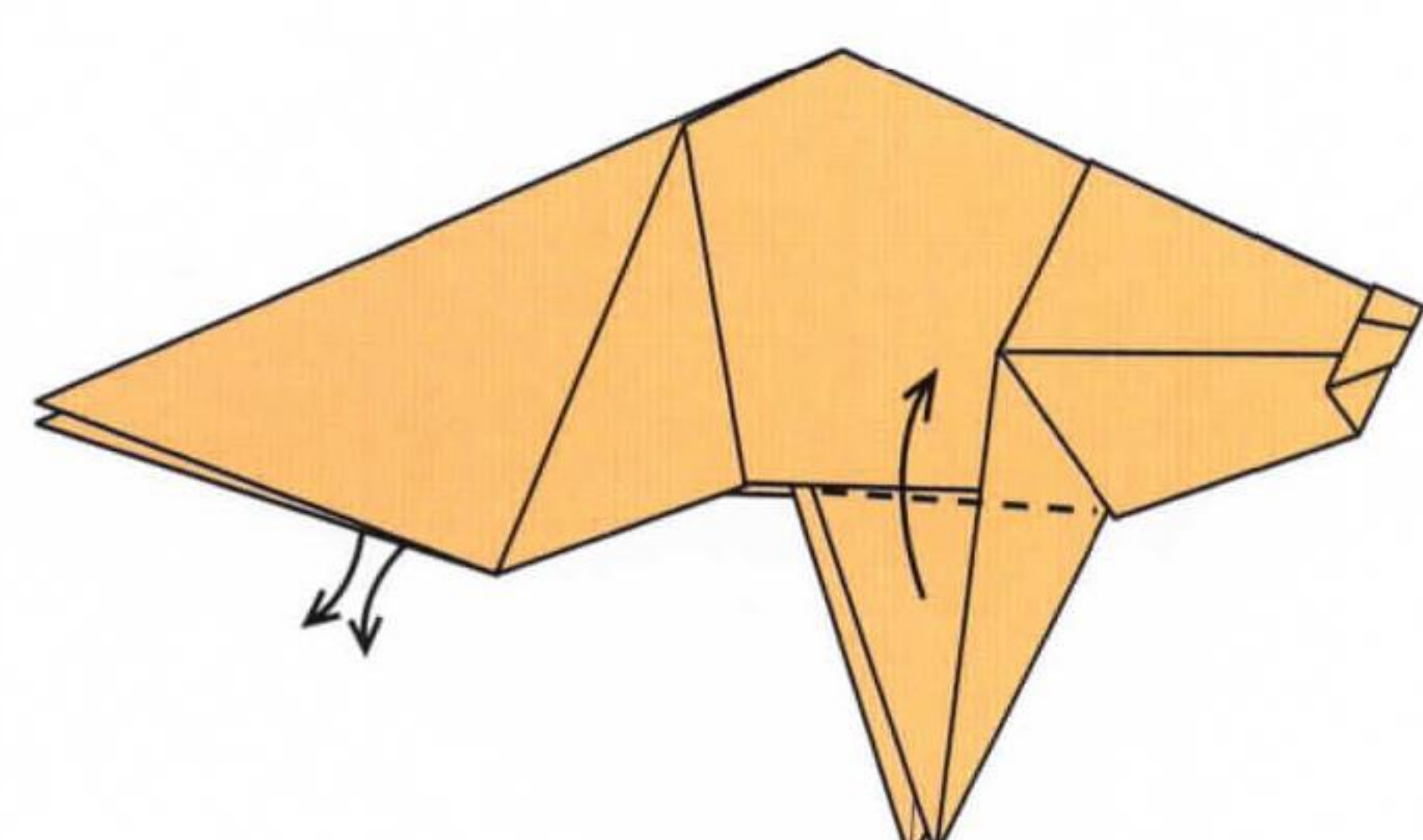
14. Inside-reverse-fold each side of the tail up, aligning the spine with the top edges.



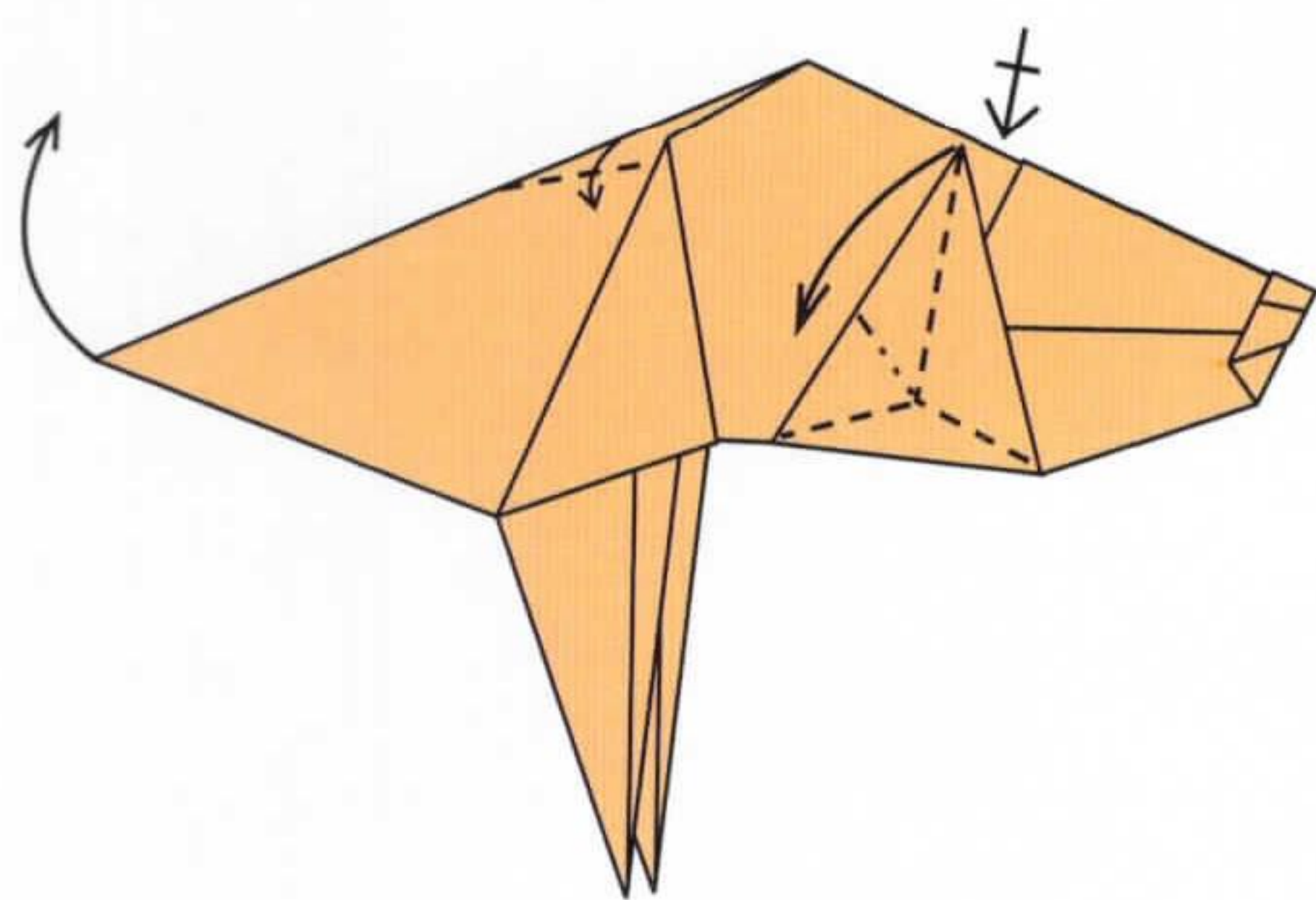
15. Fold the indicated corner forward. Repeat on the other side.



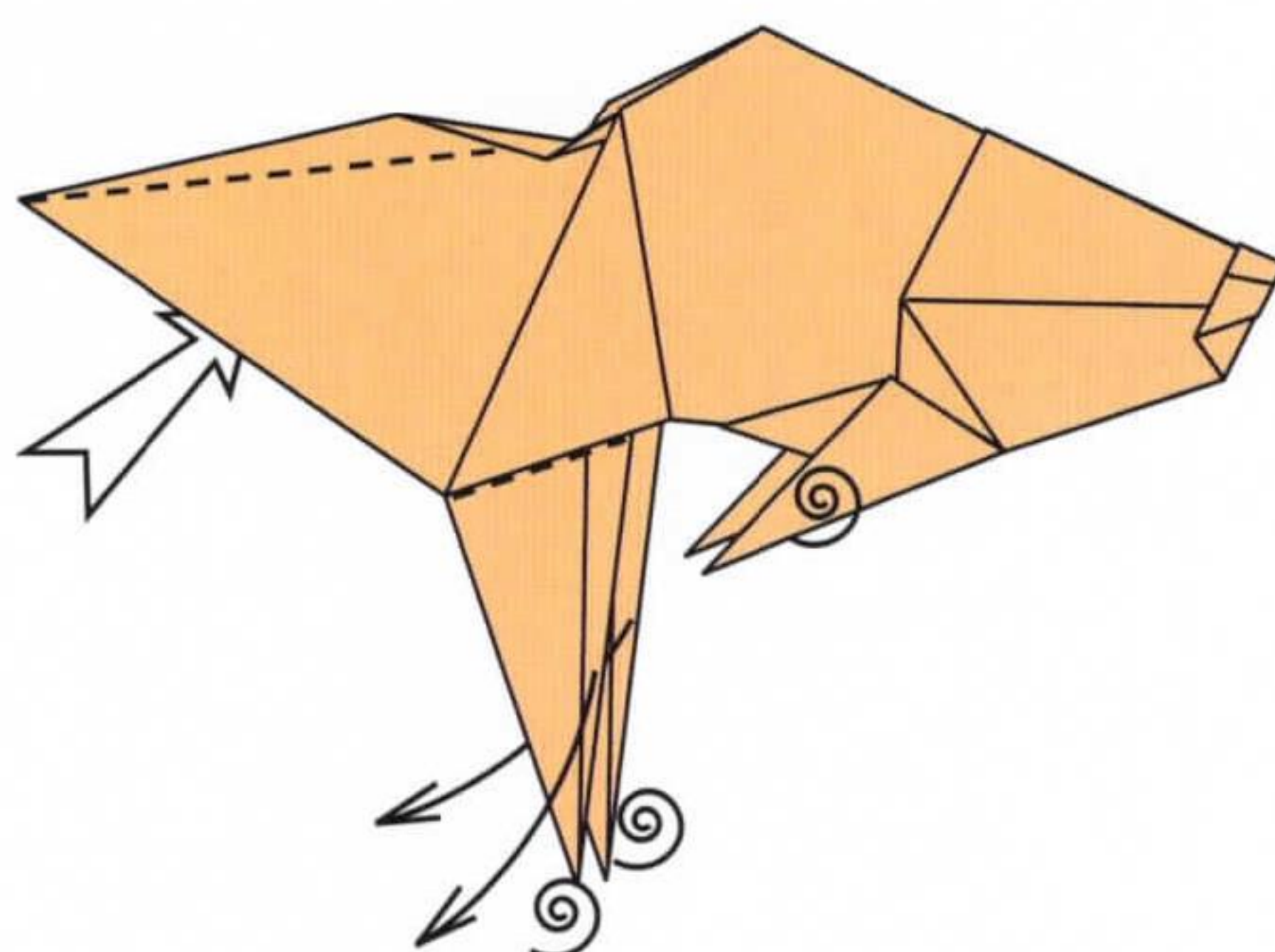
16. Mountain-fold the corner under the body. Repeat on the other side. Swivel the pectoral fin edge forward. Repeat on the other side.



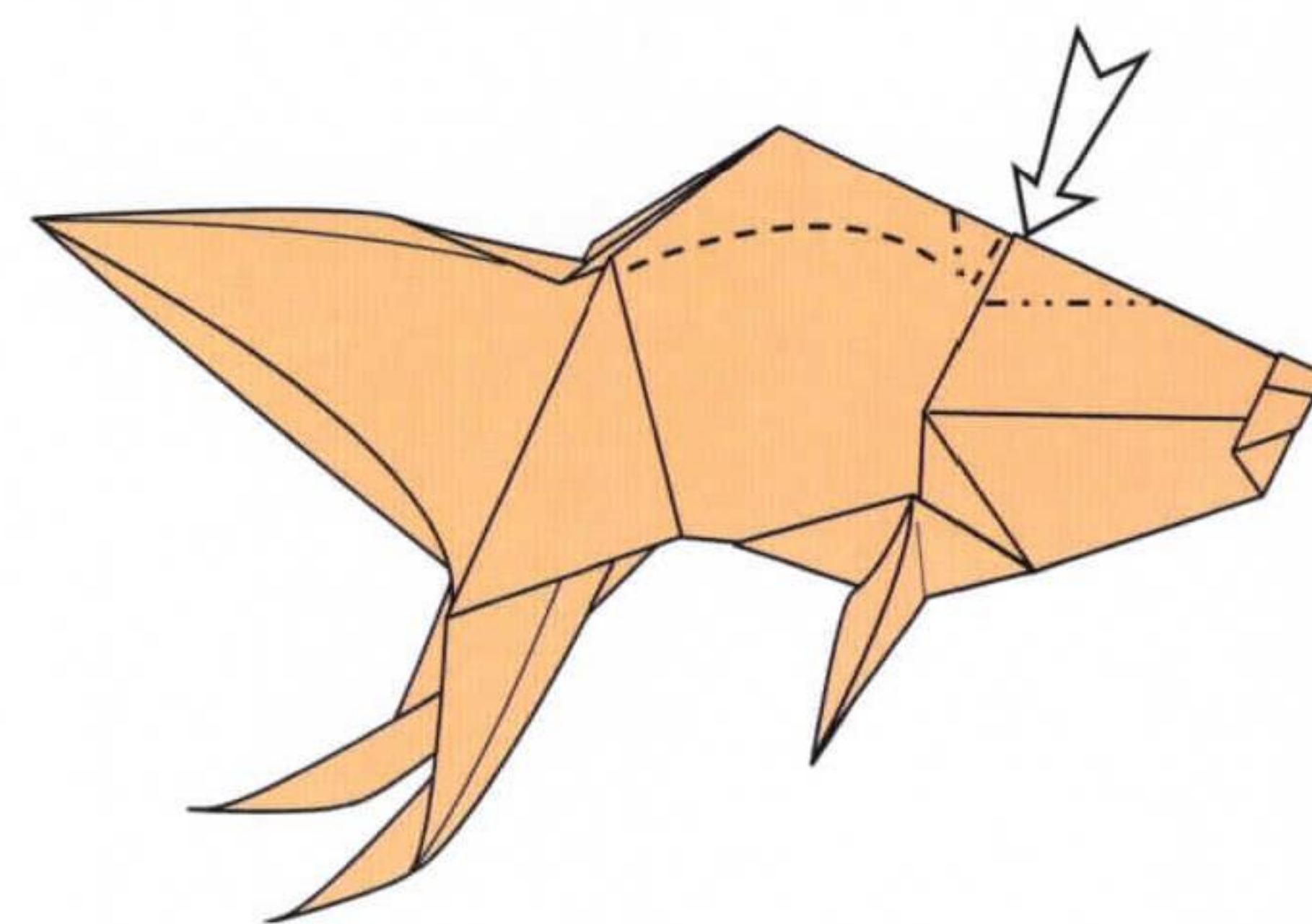
17. Fold the pectoral flap upward. Repeat on the other side. Pull the inside tail points out and down.



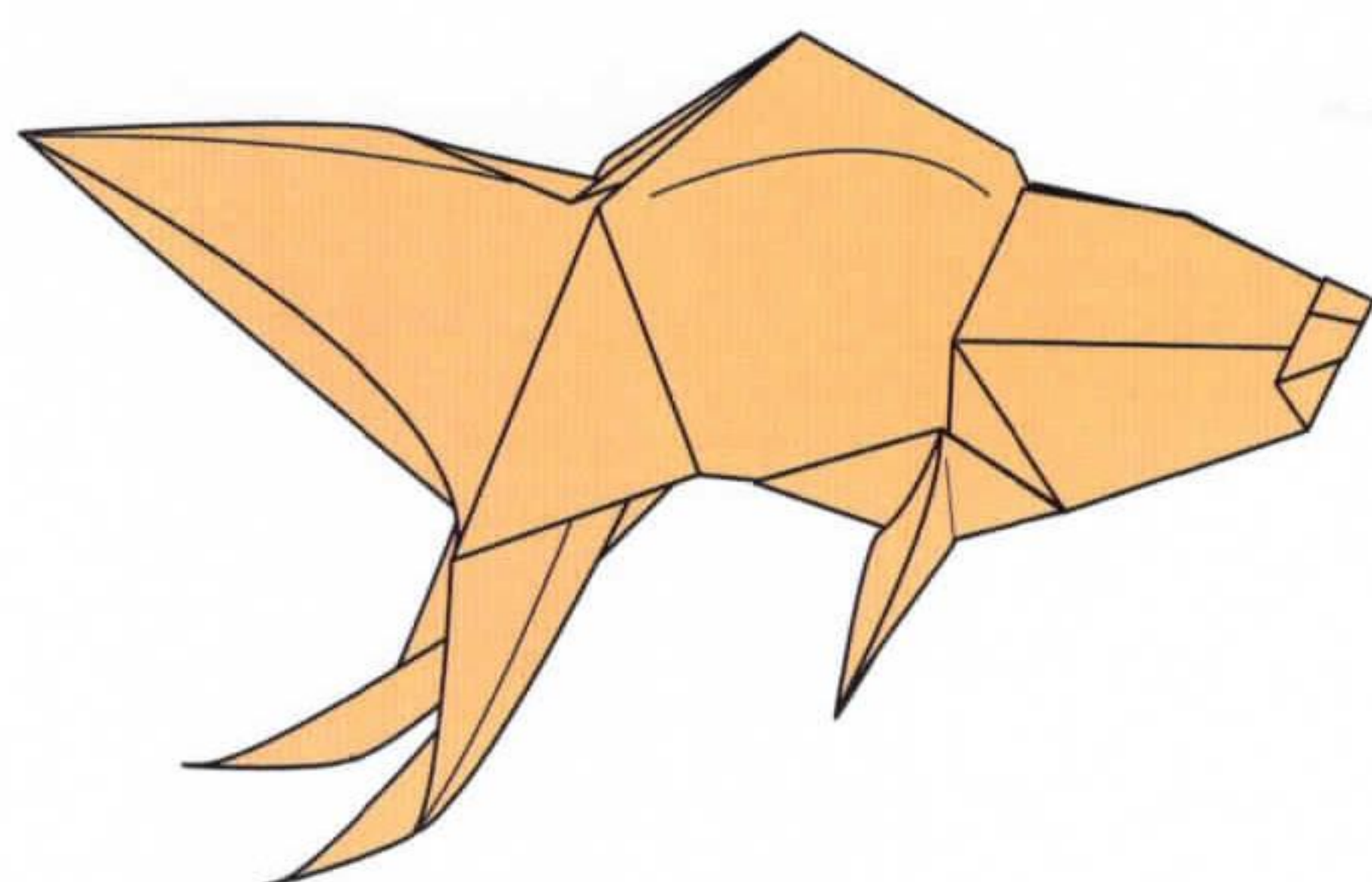
18. Fold the front fin points in half and flatten backward. Fold the top front edge of the tail fin while rotating the tail up into the body, with a crimp at the junction of the tail and body.



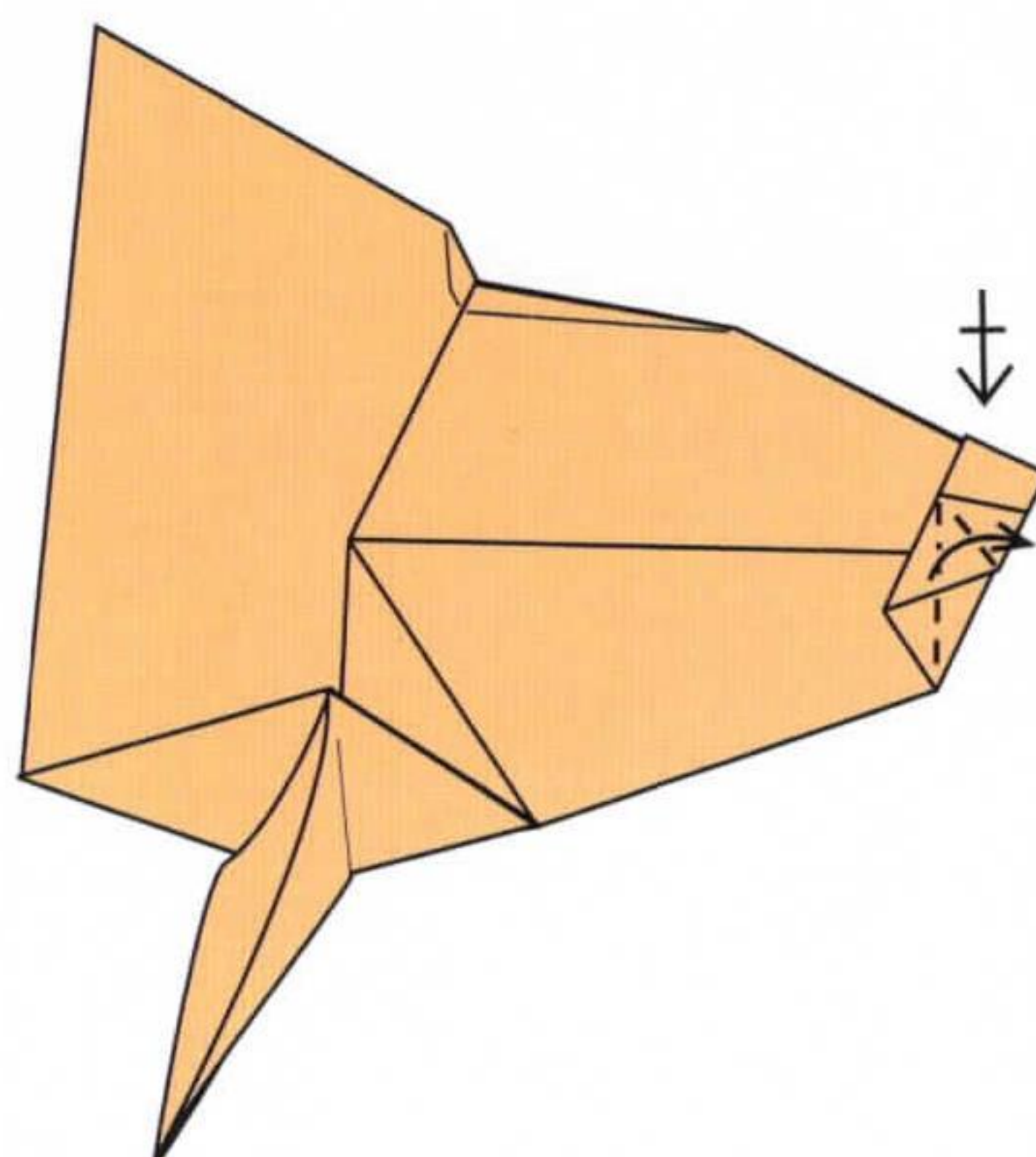
19. Fold the bottom tail points out and curl. Curl the front fins. Curl the top crease along the top of the tail, opening the tail from inside. Feel free to experiment with the shapes to make a graceful form.



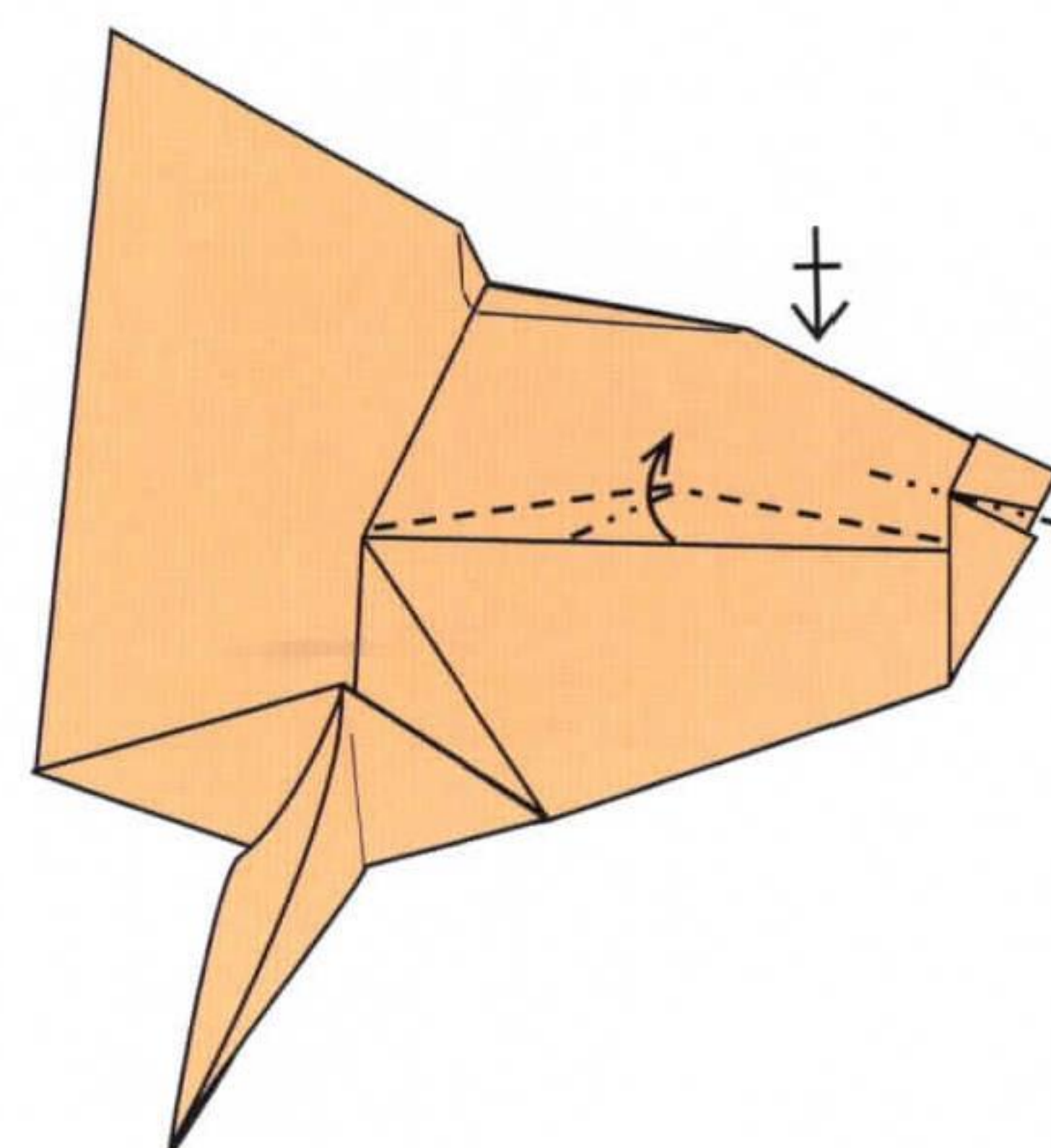
20. Round out the upper shape of the top of the back by accentuating the base of the dorsal fin with a valley pinch on either side. Crimp the dorsal fin at the junction of the base of the head.



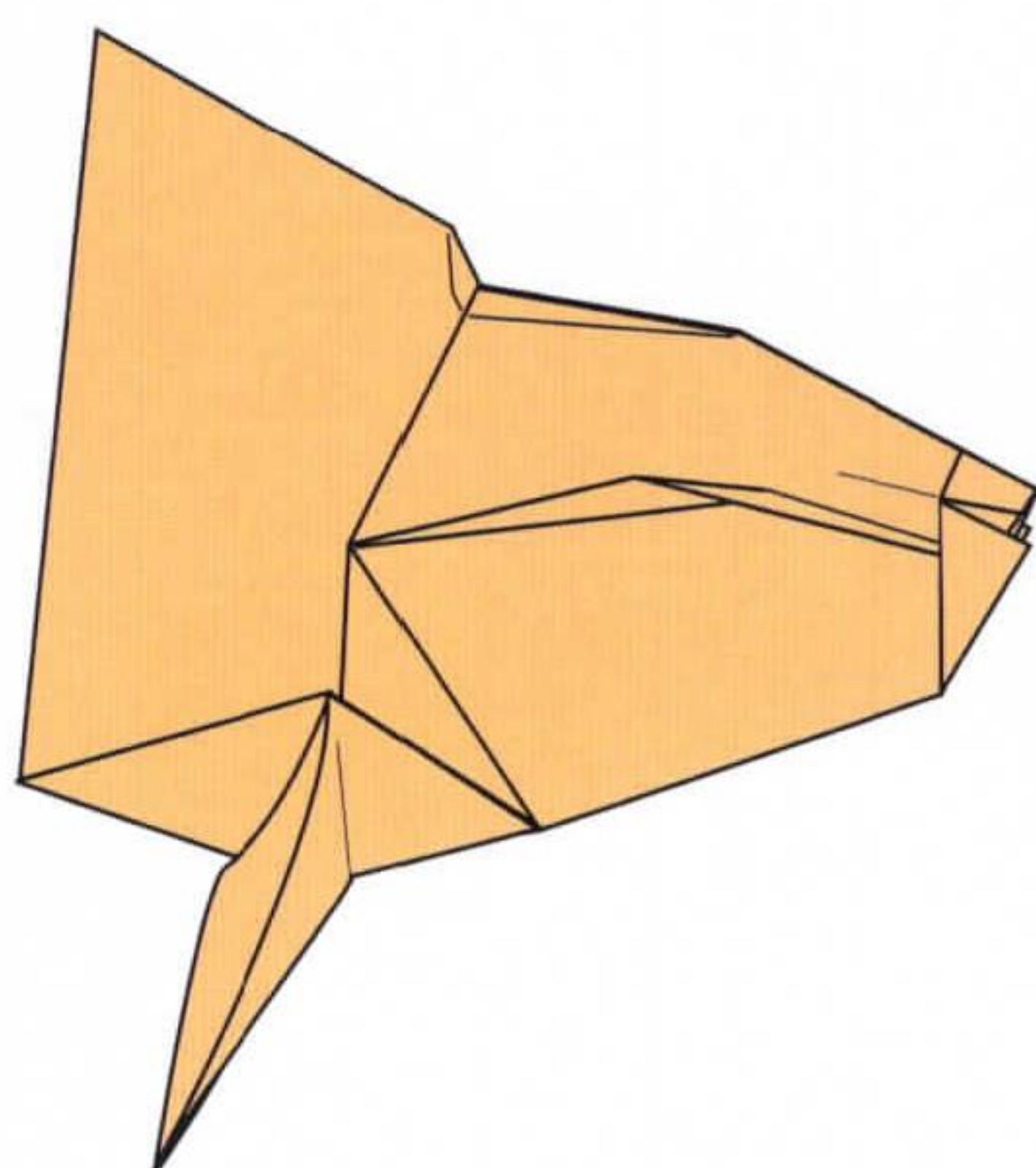
21. View of this stage.



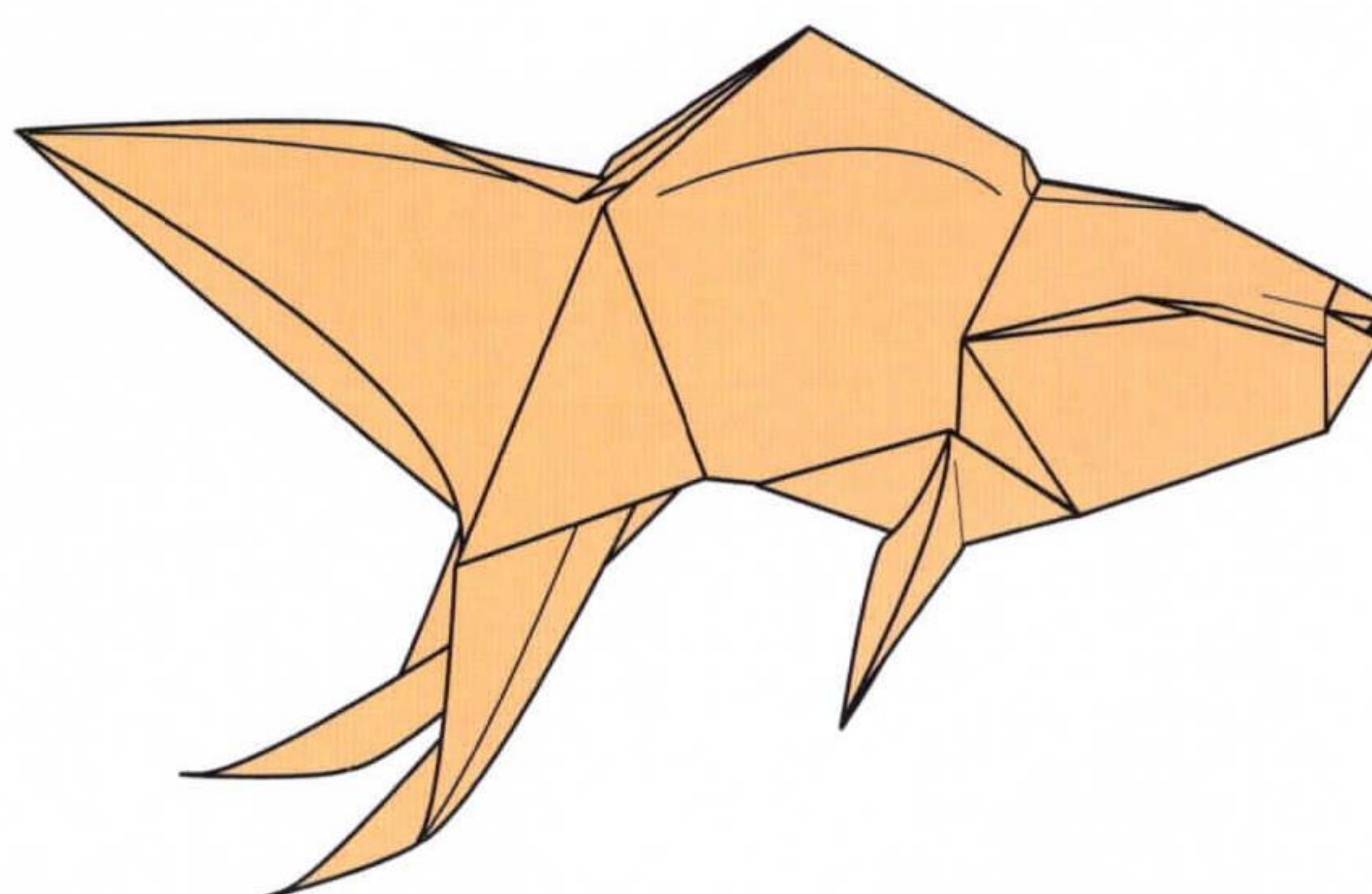
22. Narrow both sides of the lips by folding the outer edges to the lower lip.



23. Round out the snout by mountain-folding the center of the lip area. Suggest eye areas by pulling the folded edge out and upward on each side.



24. Detail of the eye area. You may add more curves to any detail.



25. The finished Goldfish.

horseshoe crab

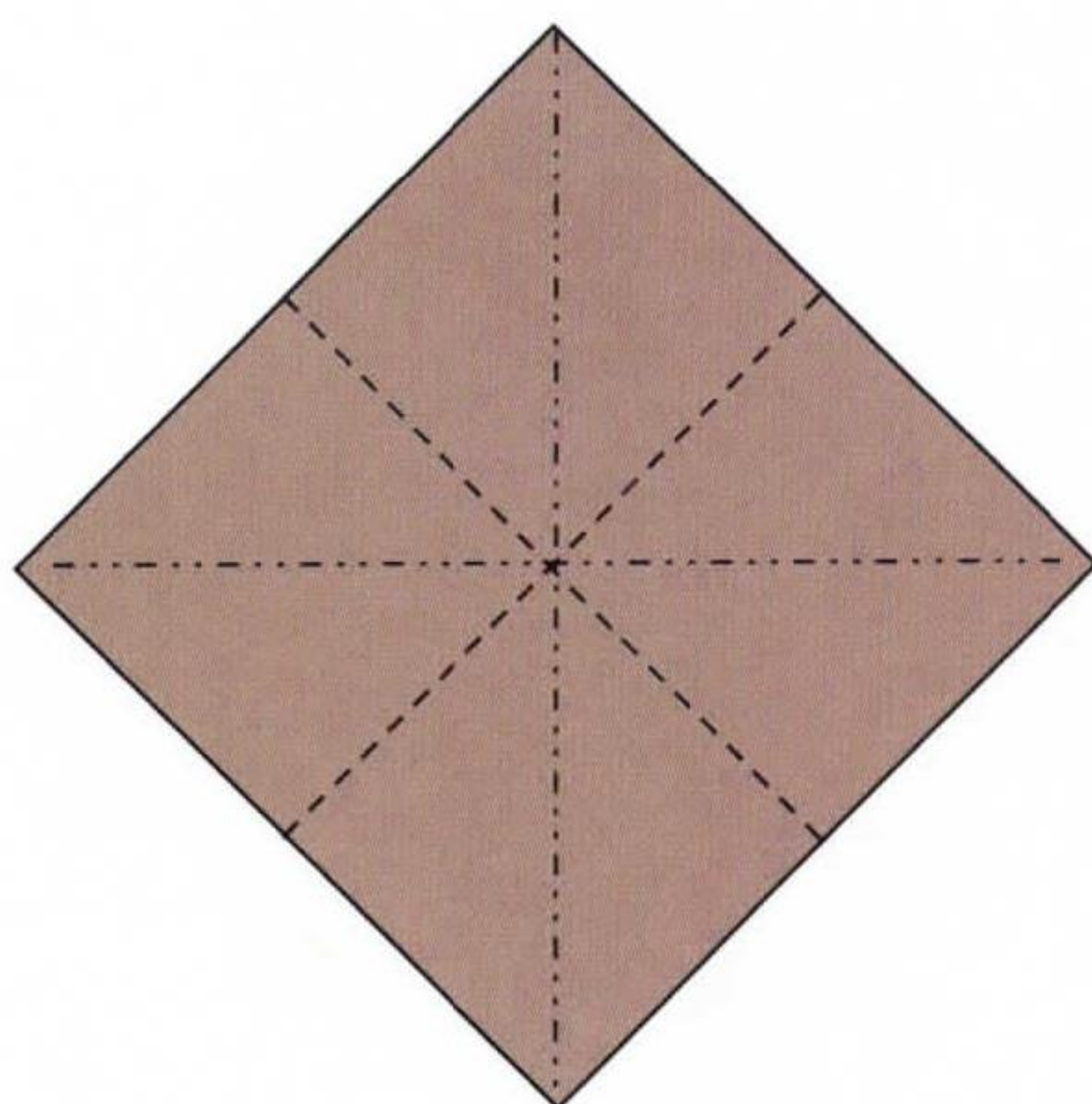
Designed by Michael G. LaFosse



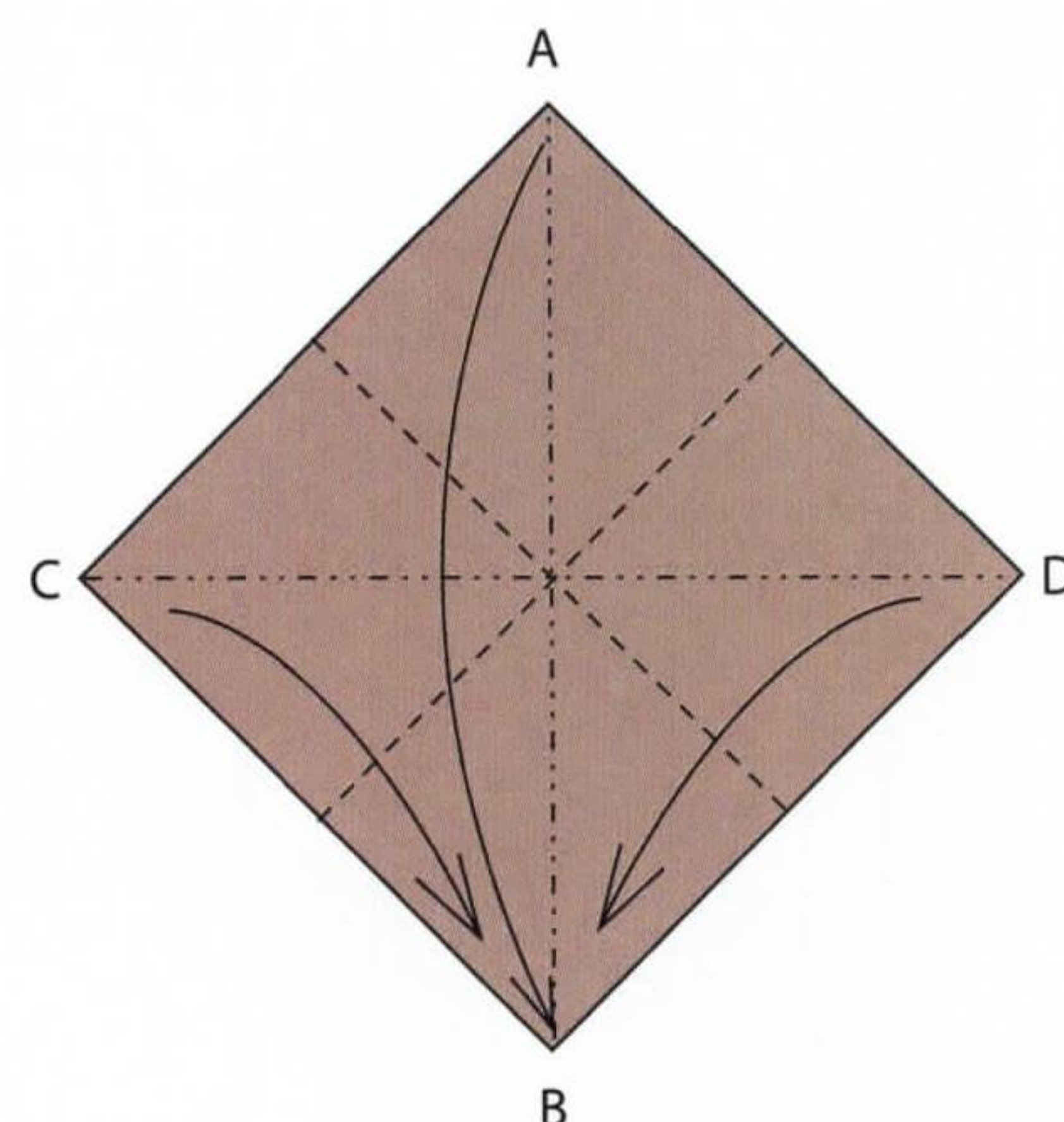
I was tempted to design a model with all of the legs, but later realized that it would require a serious compromise not worth the cost from the model's most important view—its top side. As soon as I let go of the desire to create an anatomically correct crab, it became possible to pour energy into making the top side pure, full and elegant. The subtle shaping of the front is in stark contrast to the strong, angular folds of the pointed tail and at the base of the tail.

PAPER SUGGESTIONS

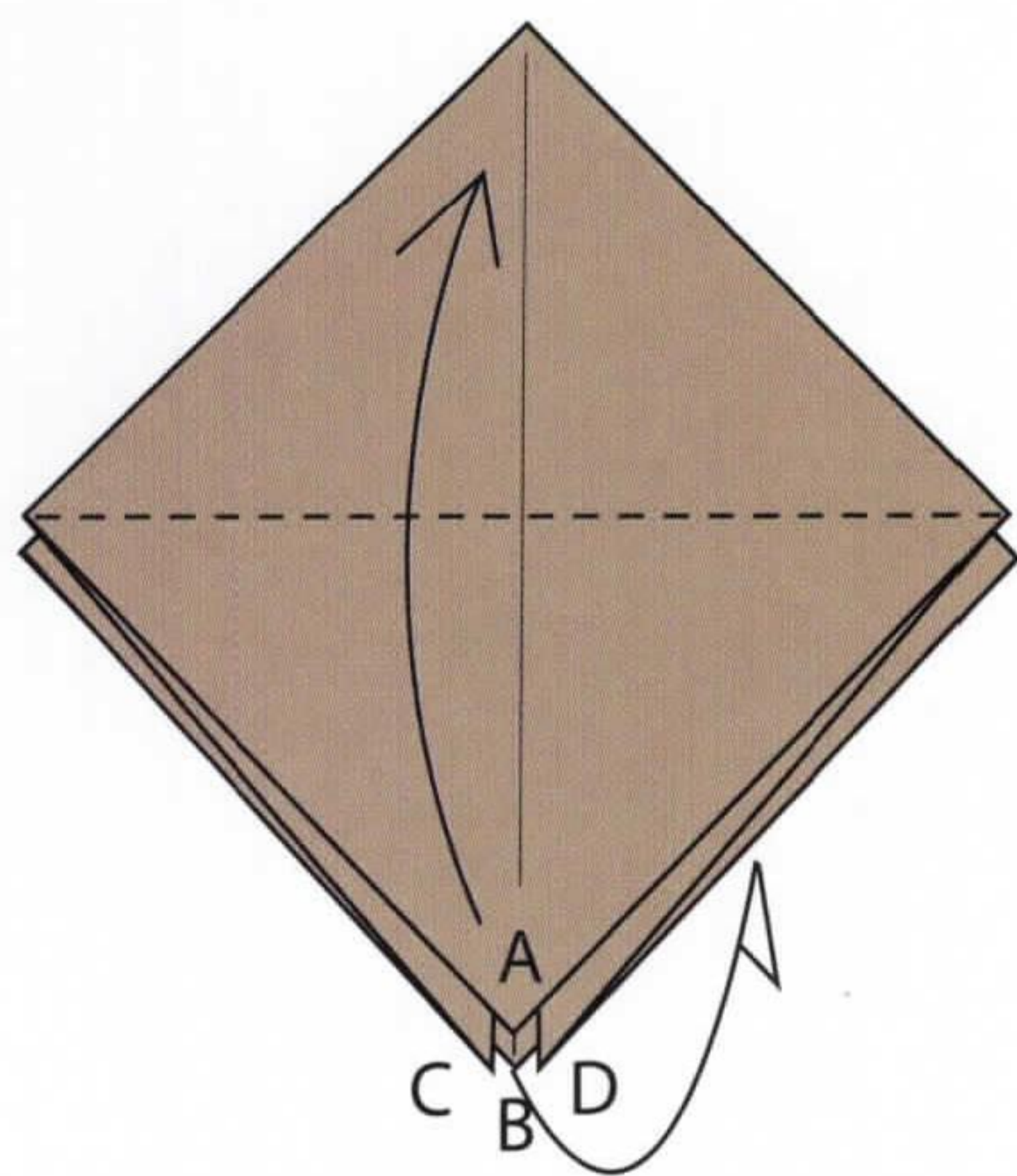
A 10-inch (25-cm) square will produce an 8½-inch (21.6-cm) horseshoe crab. The color of the paper can be anything from beige to dark chocolate brown.



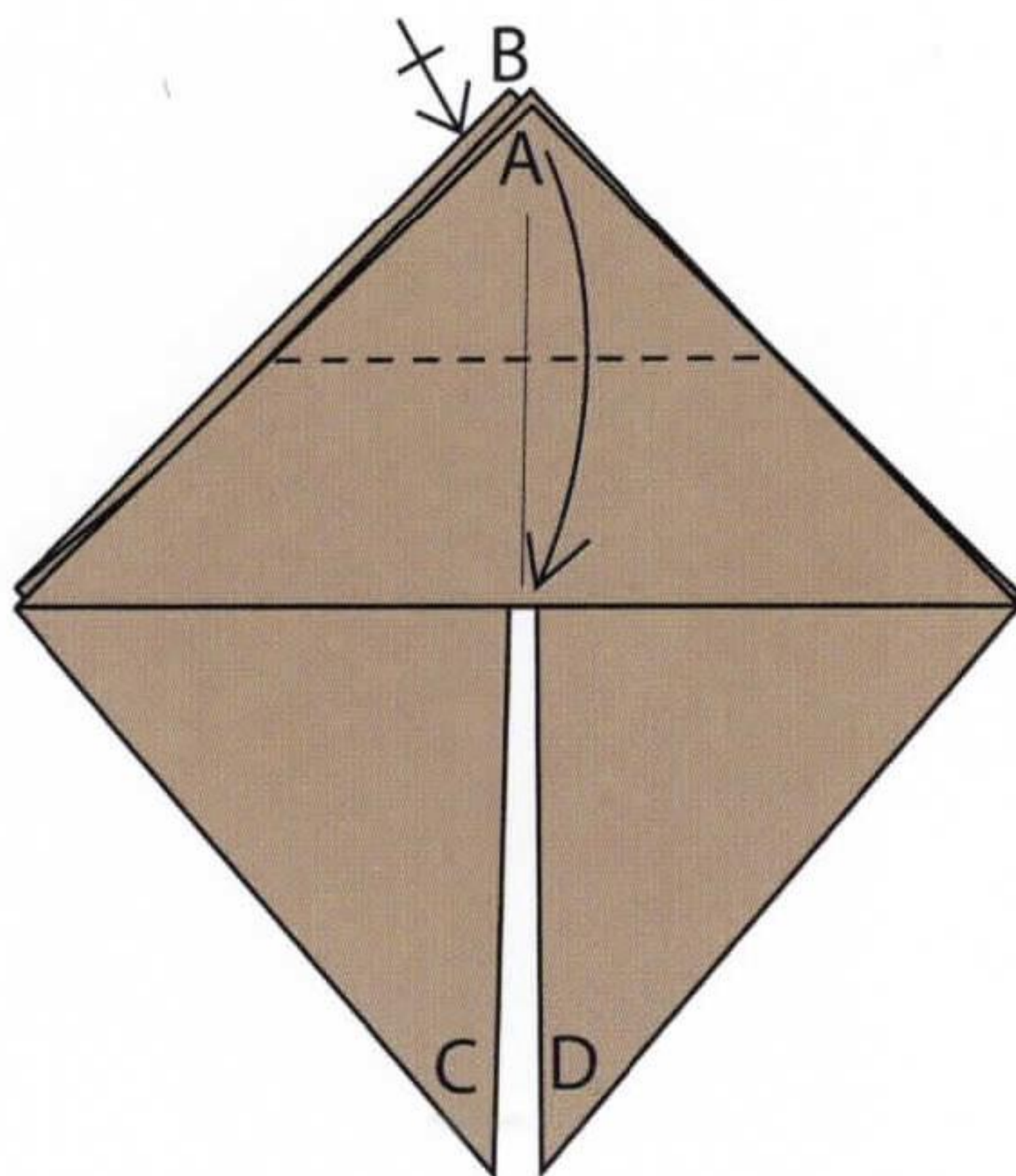
1. Mountain-fold in half, corner to corner both ways. Valley-fold in half, edge to edge both ways.



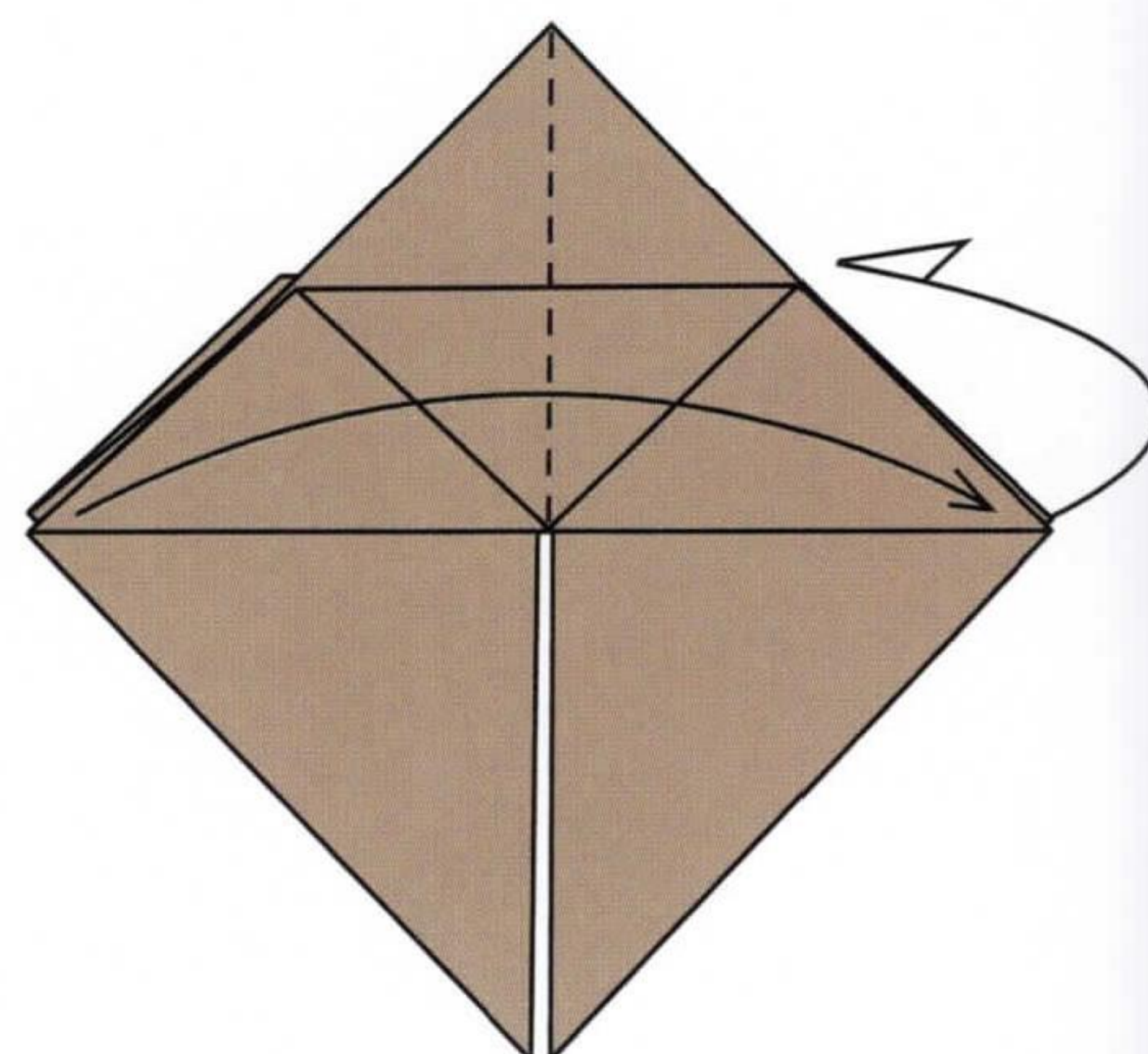
2. Use the creases to bring corners A, B, C and D together at the bottom.



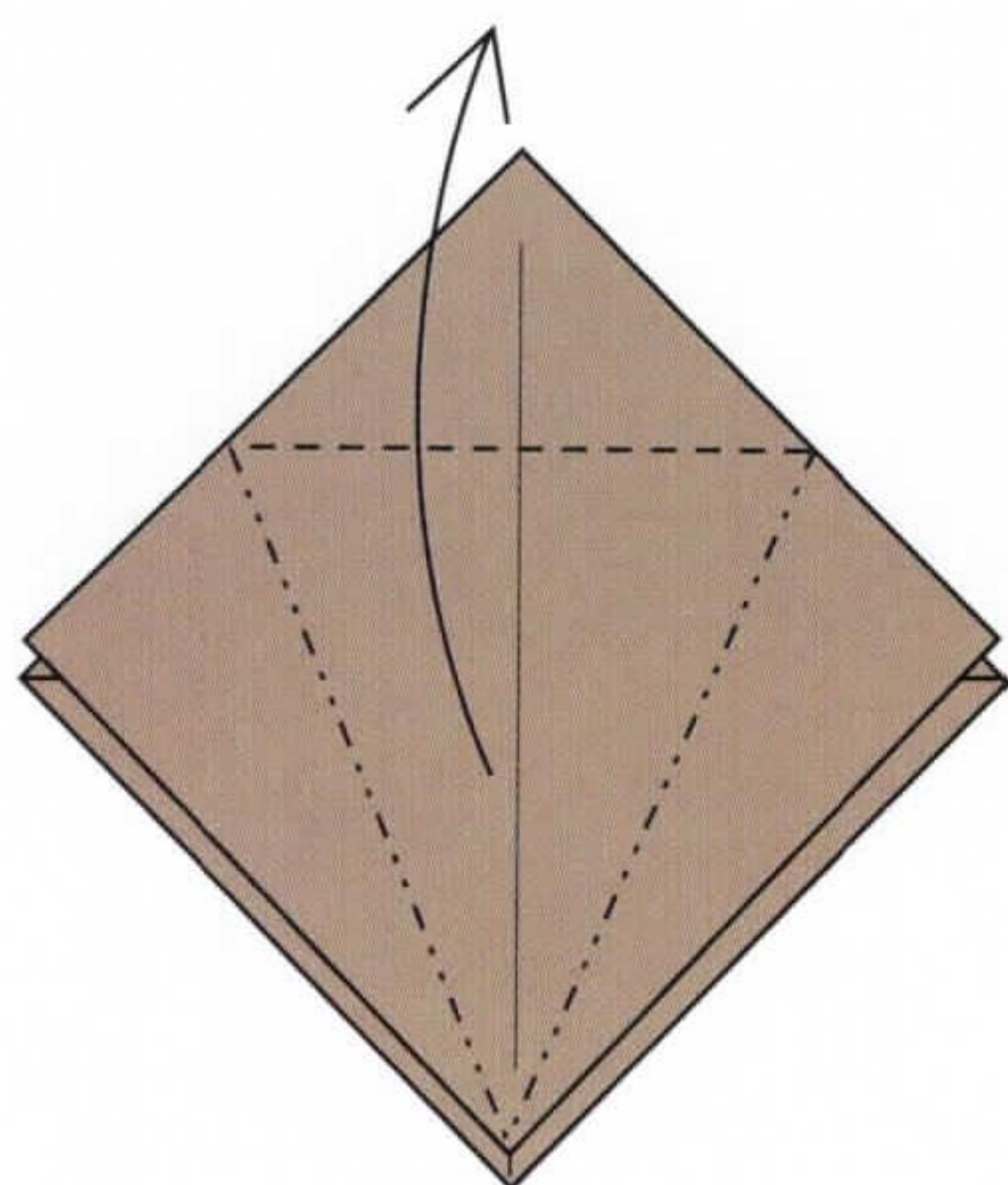
3. Fold corners A and B up to the top center point.



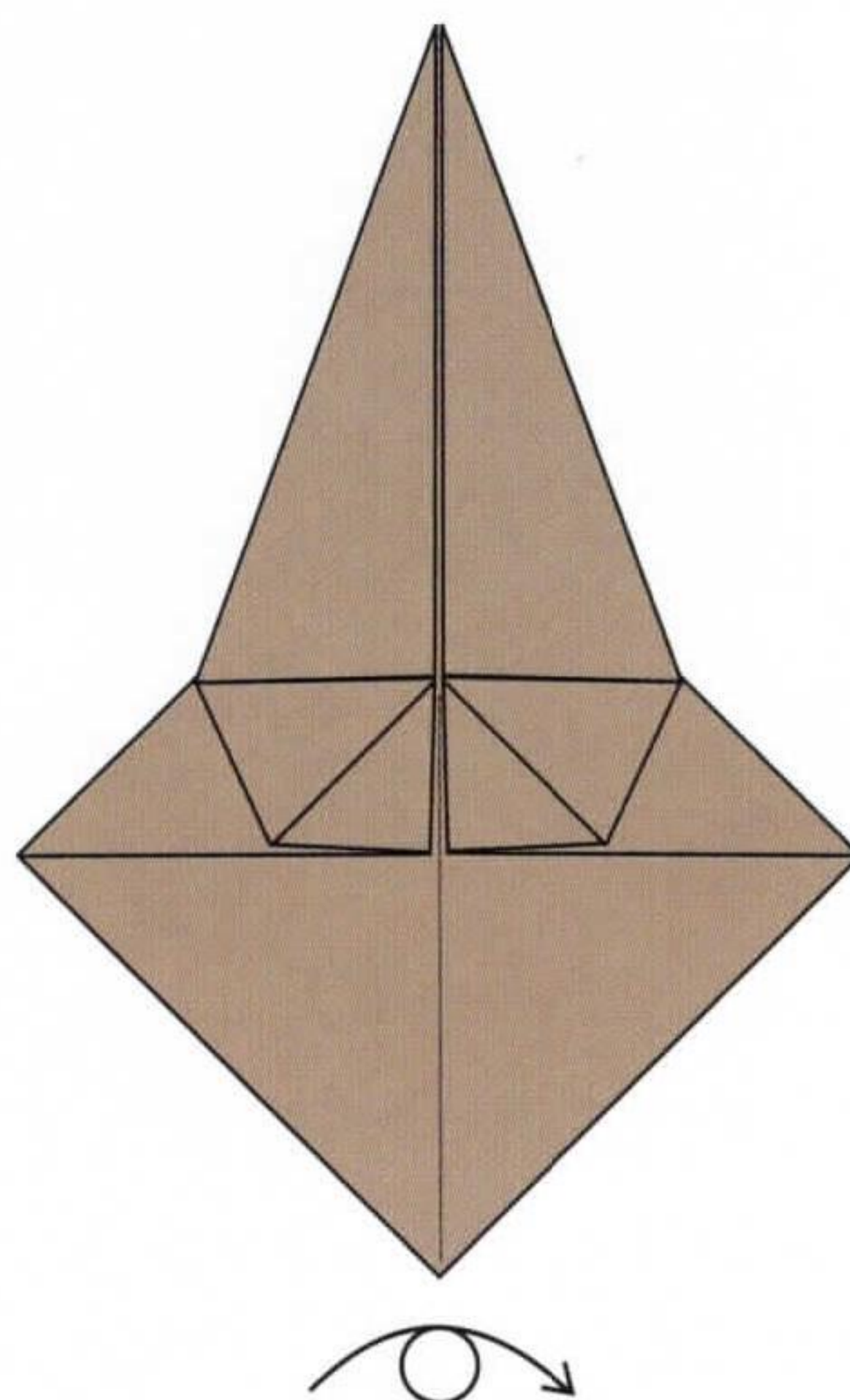
4. Fold points A and B down to the center of the paper.



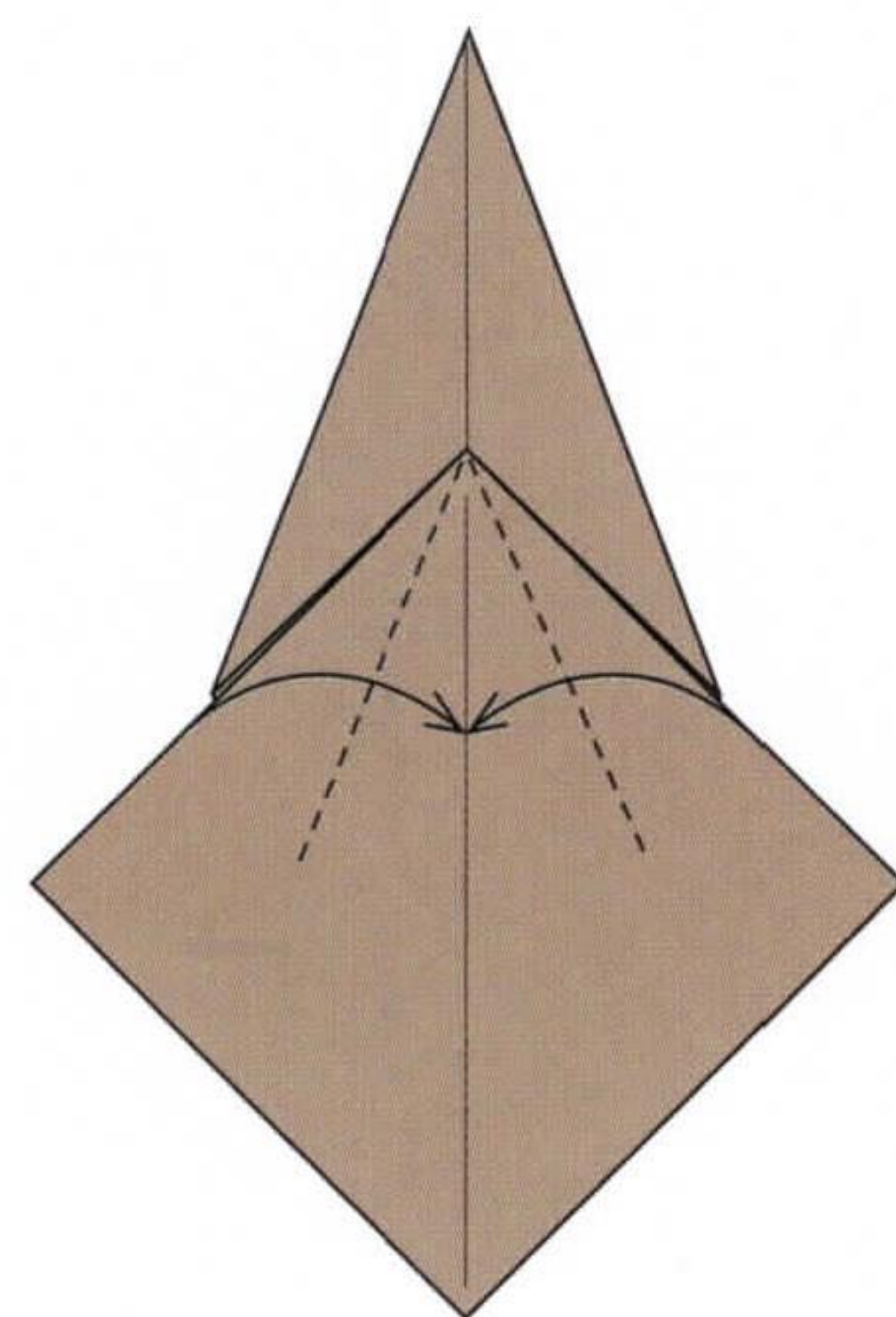
5. Fold the left top-side corner to the right and the right back-side corner to the left.



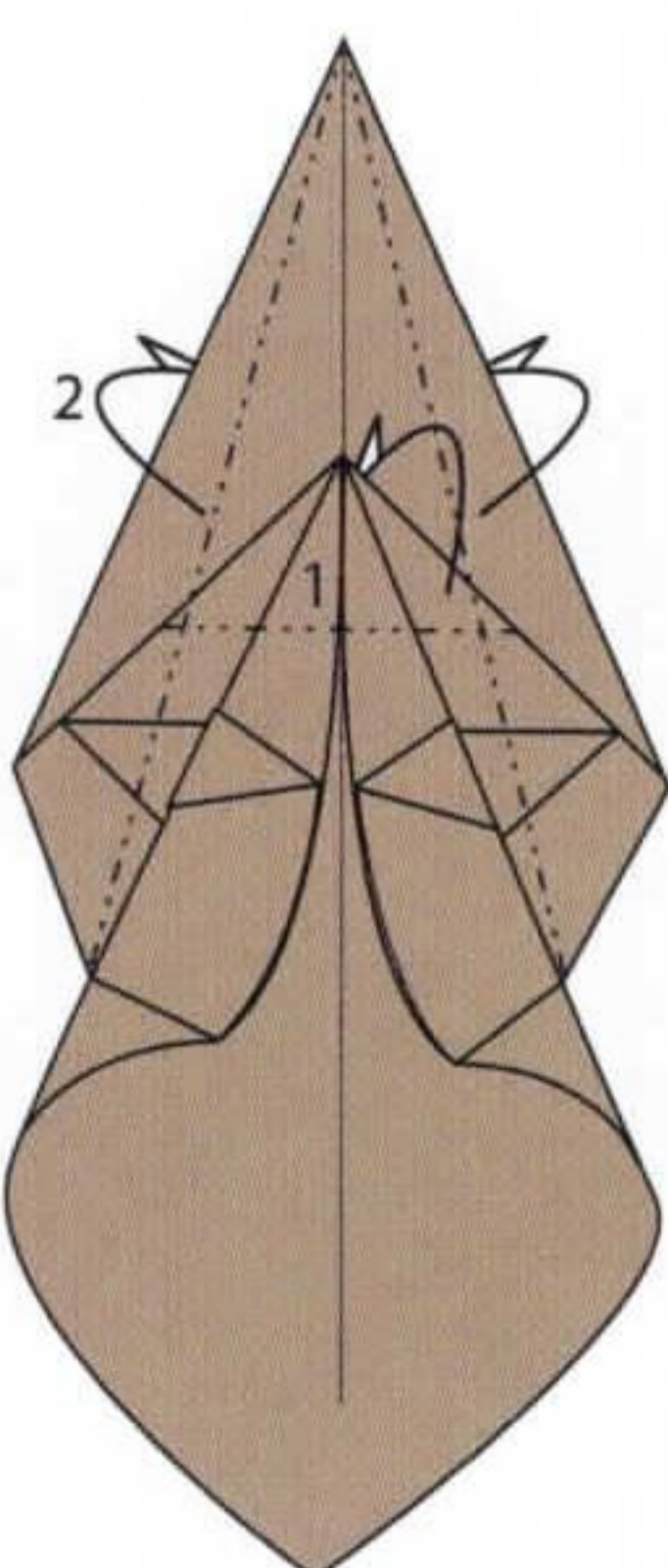
6. Petal-fold up. Do not repeat behind!



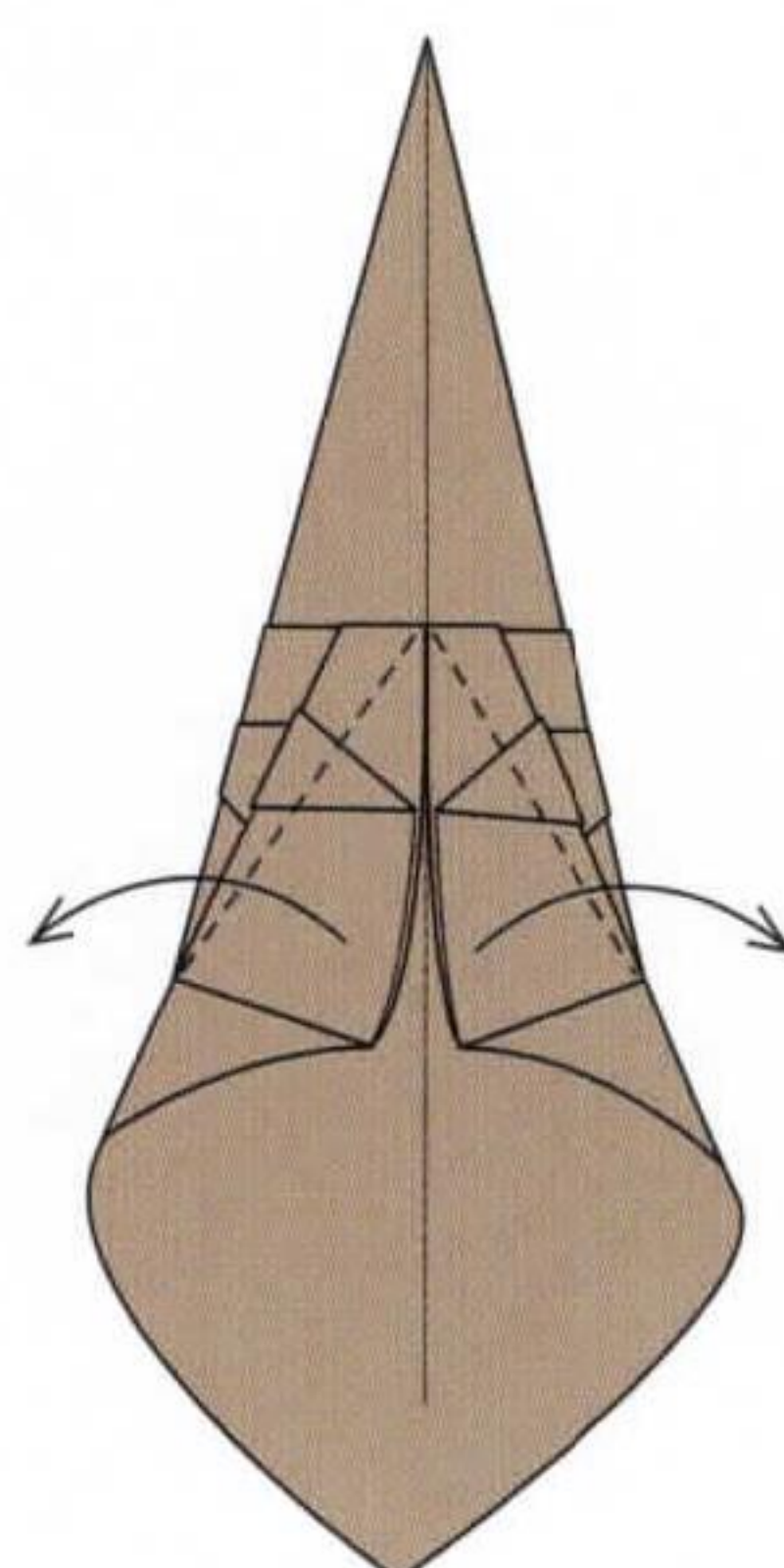
7. Turn the model over, left to right.



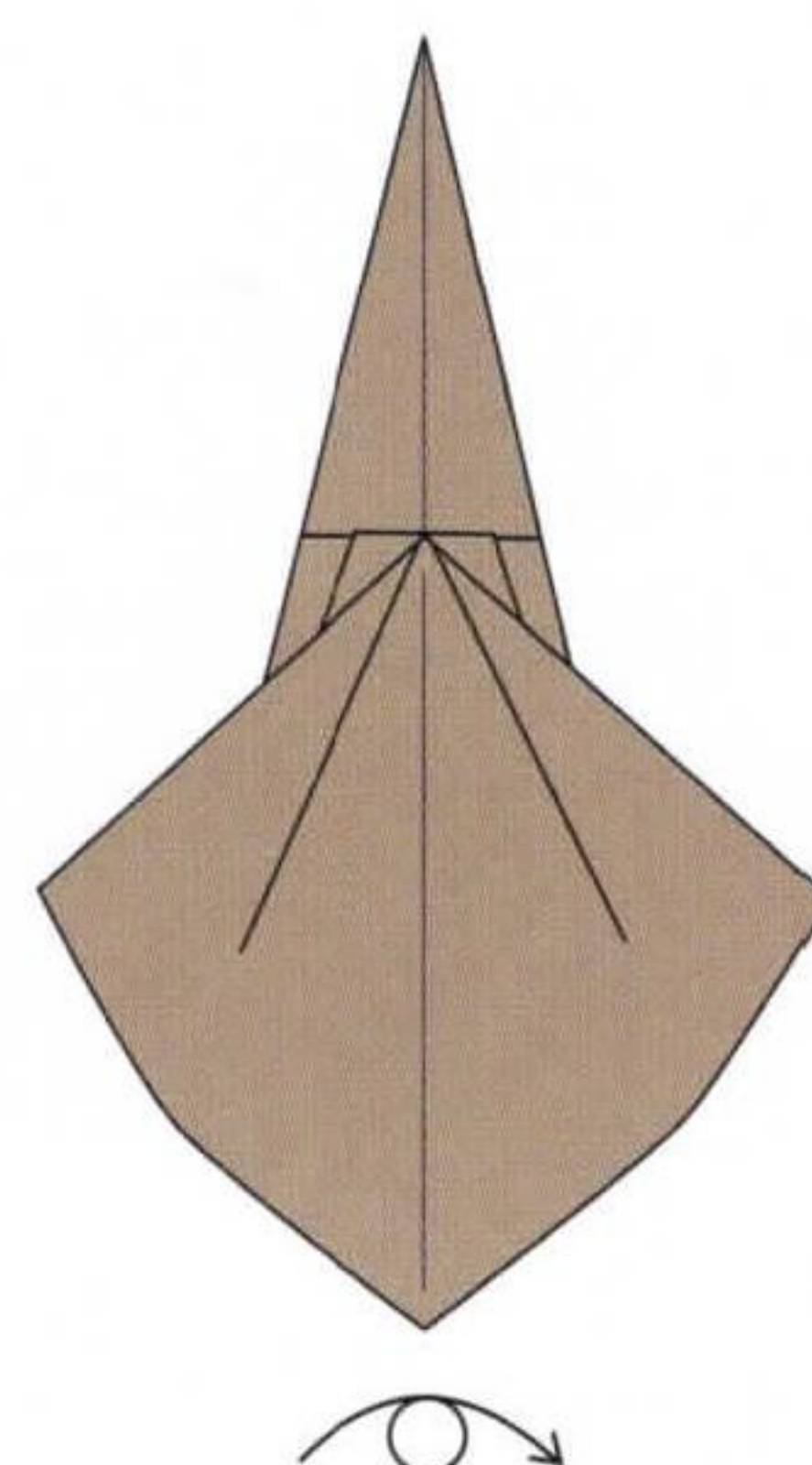
8. Fold the top edges of the square to the center crease. Do not crease the fold all the way to the edge of the paper.



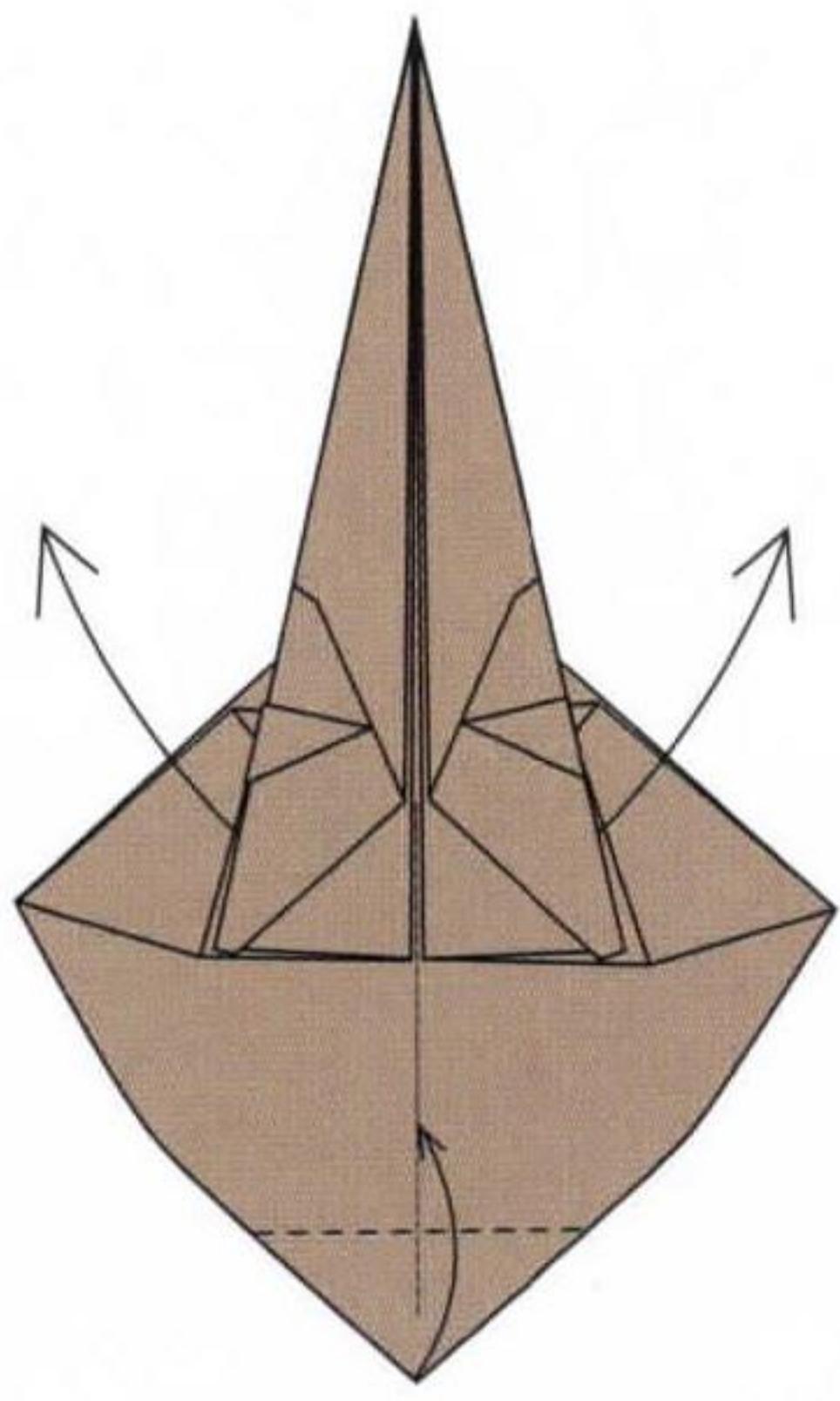
9. Mountain-fold point number 1 behind as far as it will go, flatten. Mountain-fold the outer edges of the tail (number 2) behind the model to the centerline.



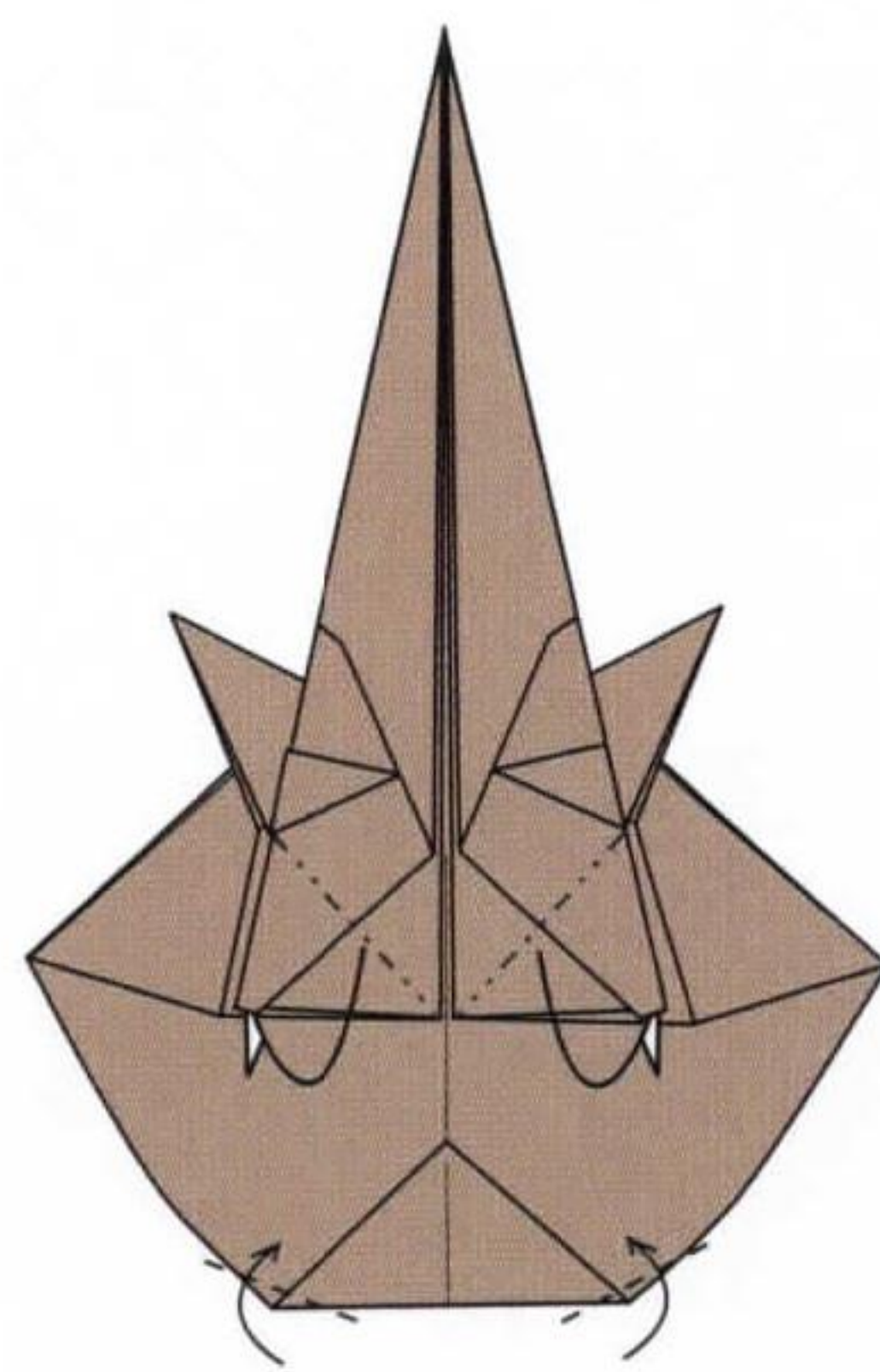
10. Fold the corners out. Do not flatten.



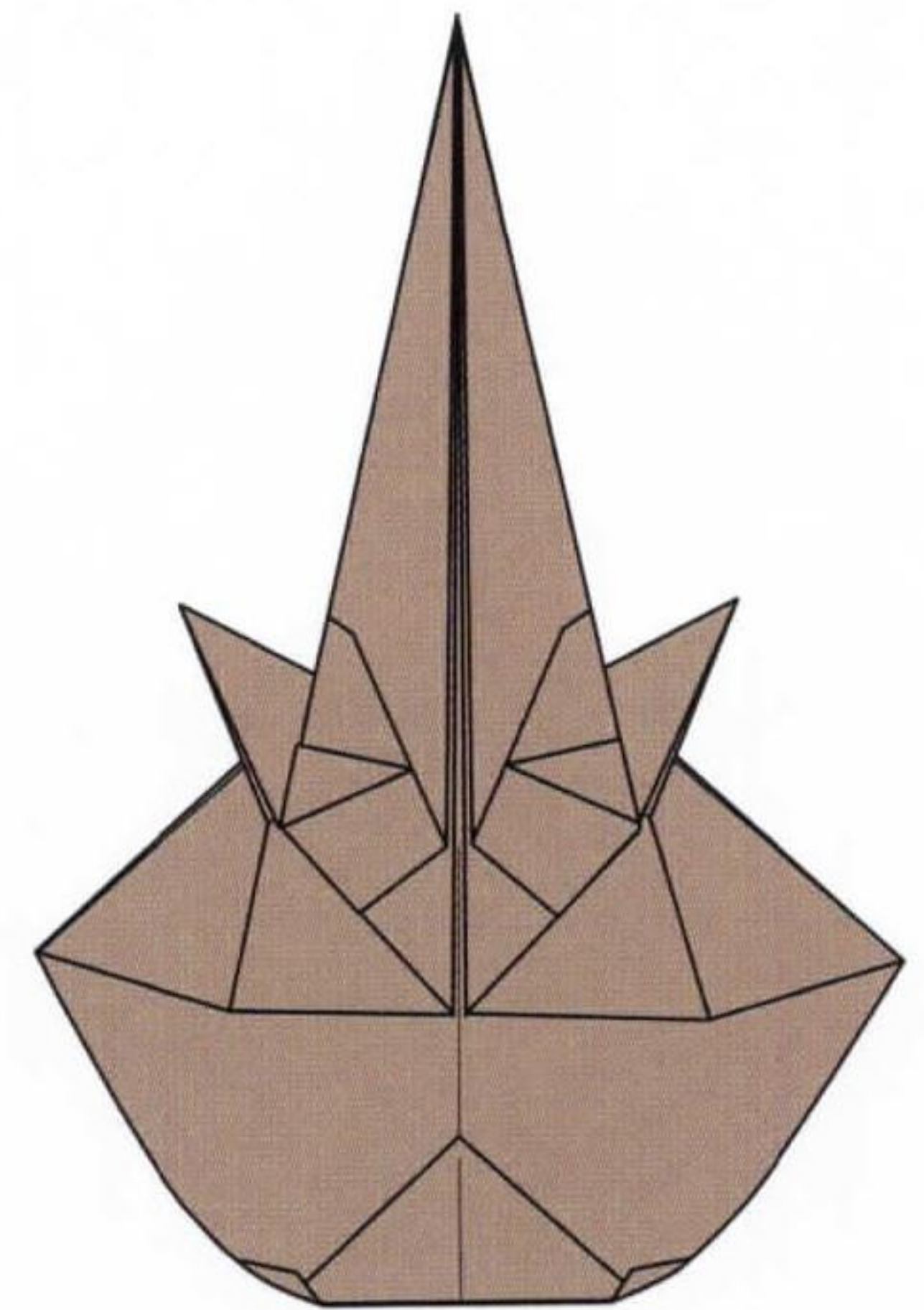
11. Turn over, left to right.



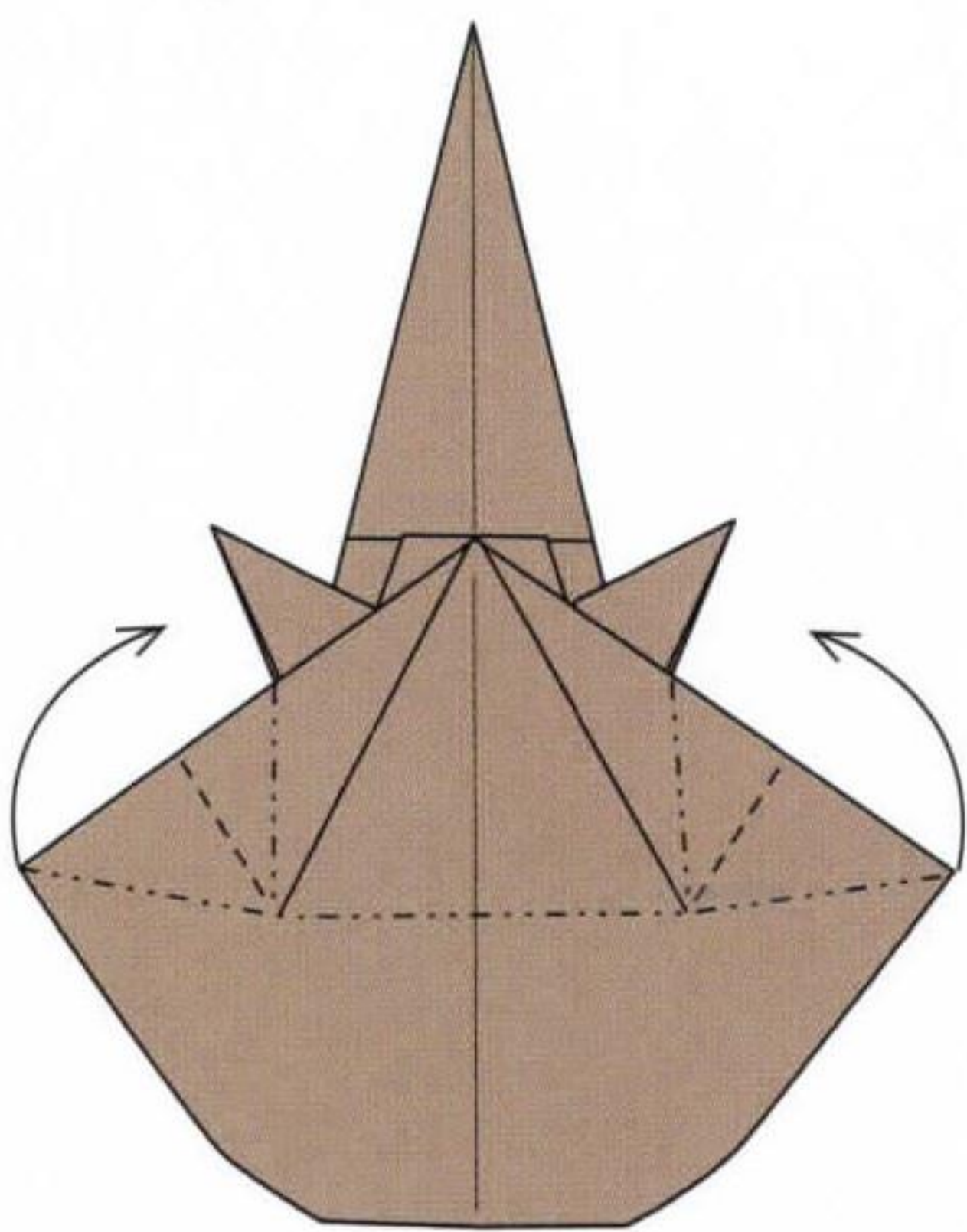
12. Fold the bottom corner up. Pull out the hidden points from each side.



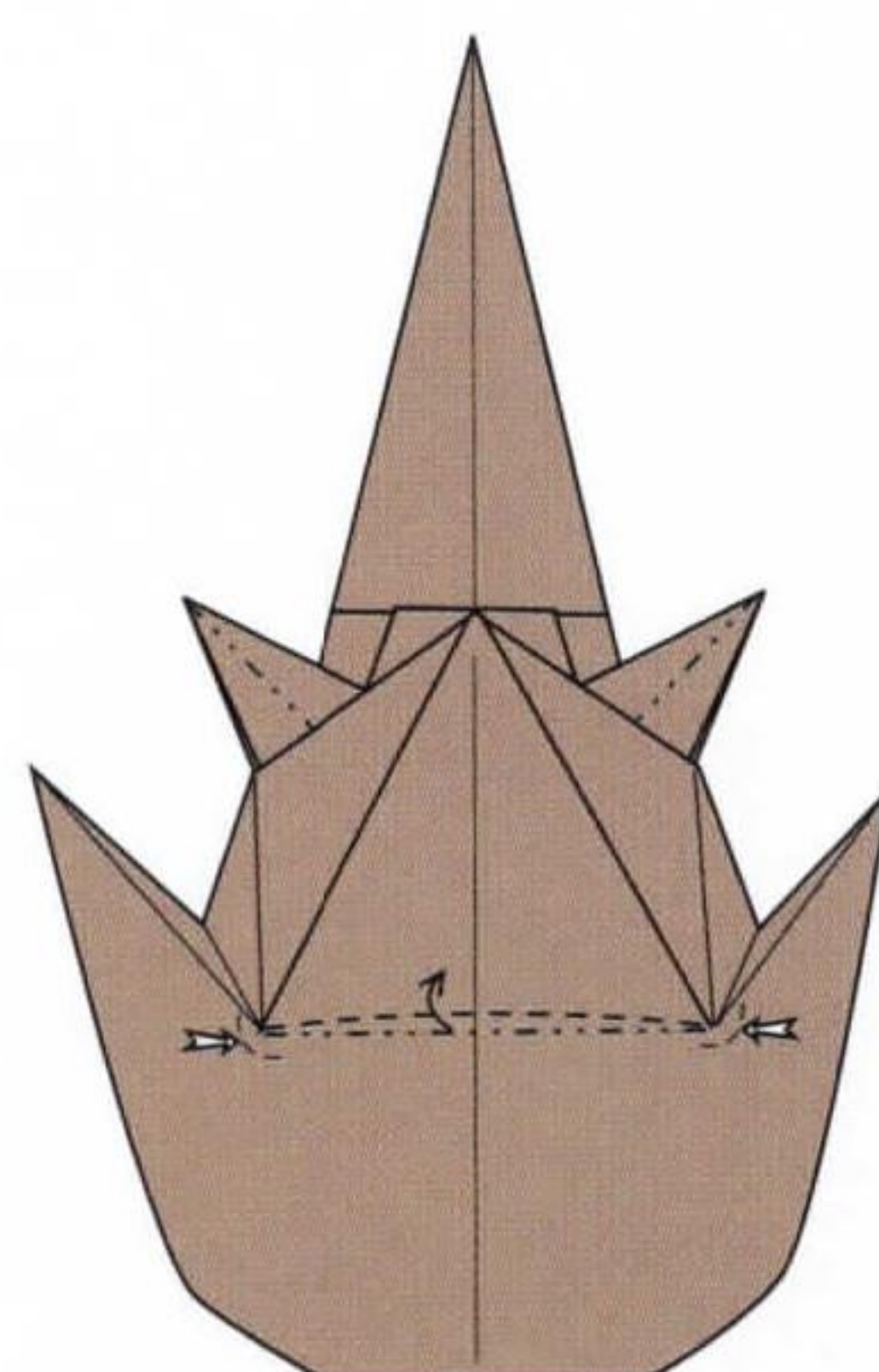
13. Mountain-fold the middle corners under. Fold small valleys at the front corners to lock the rounded shape of the shell.



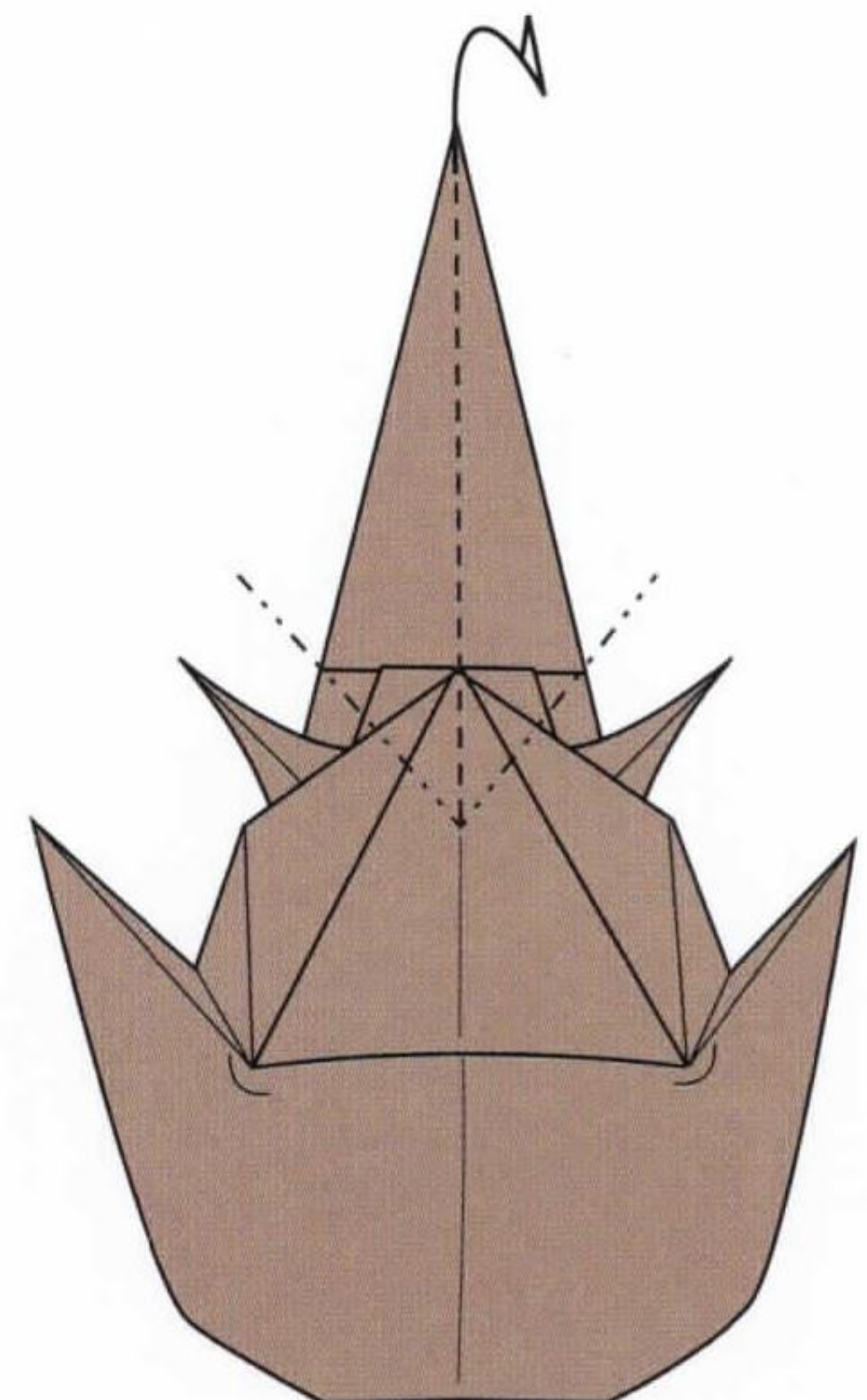
14. Turn the model over, left to right.



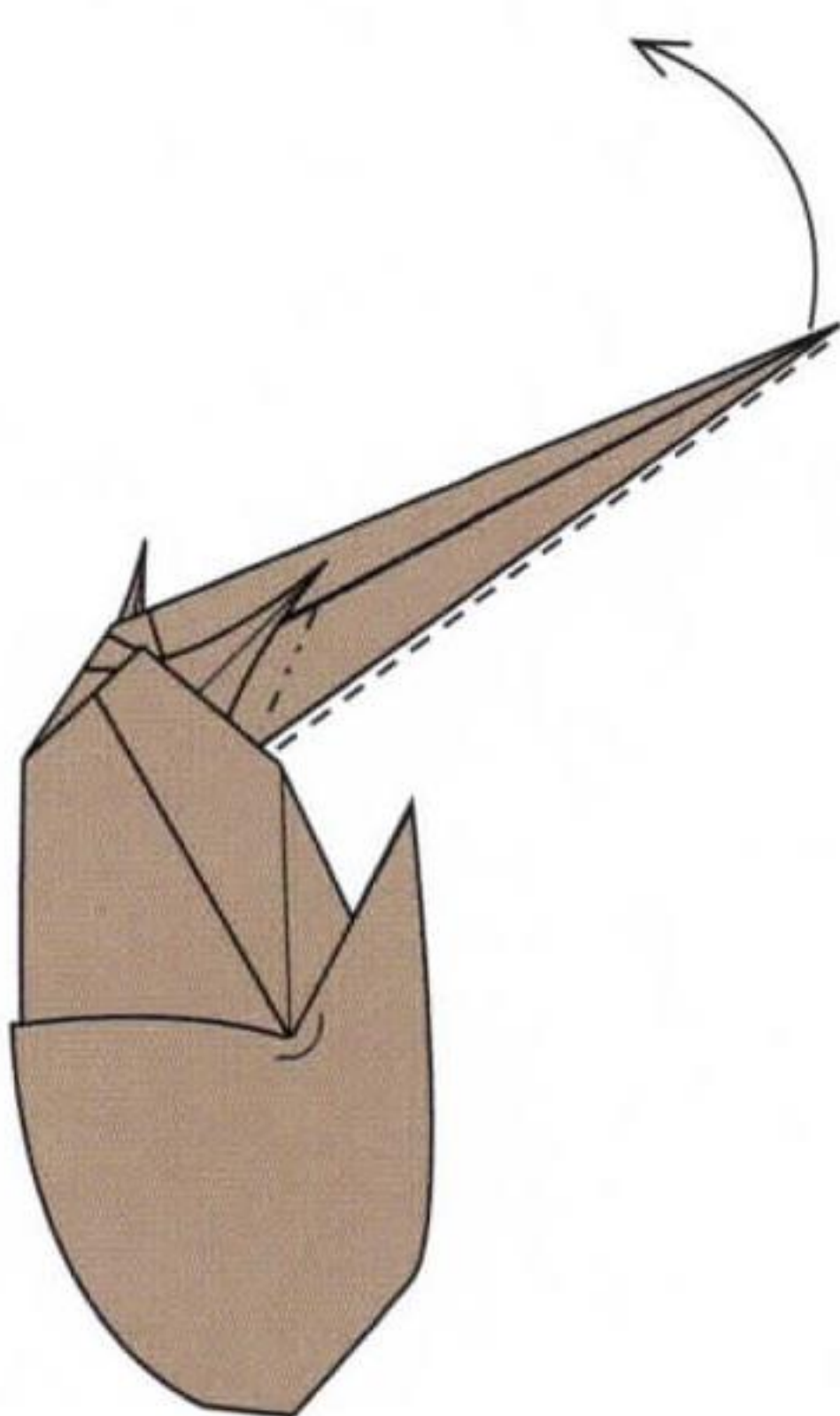
15. Mountain- and valley-fold the left and right corners to point to the rear. Form a soft mountain fold along the top of the shell.



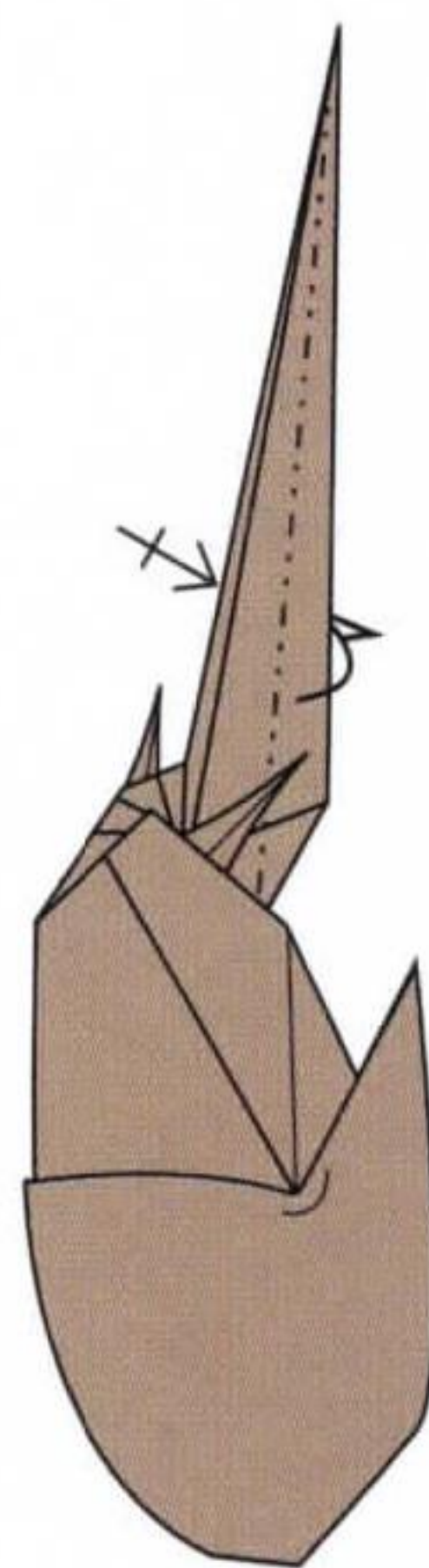
16. Mountain- and valley-fold an edge from "eyespot" to "eyespot." Indent the eyes, as indicated by the white arrows. Mountain-fold the left and right top corners.



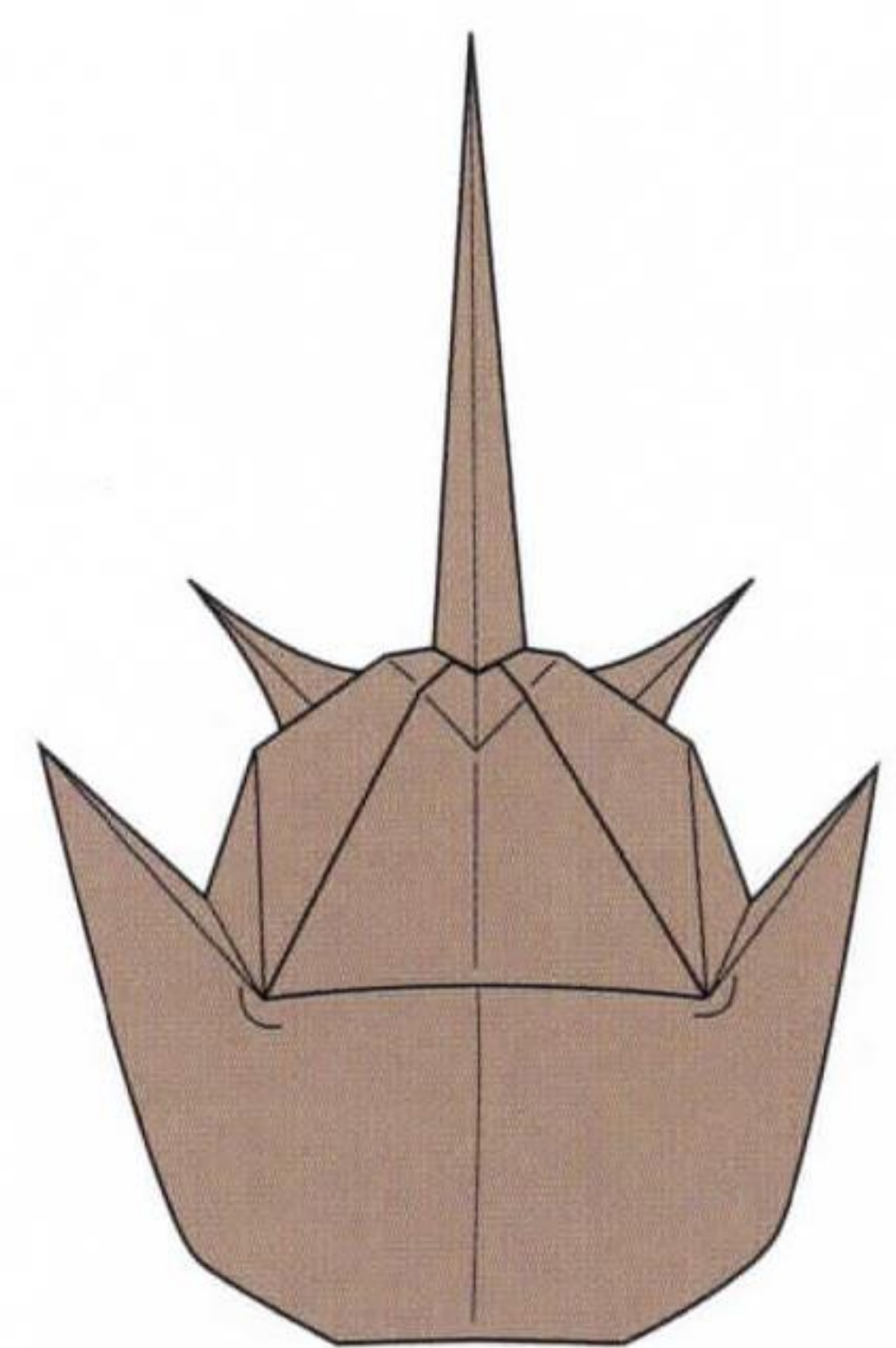
17. Inside-reverse-fold the tail down.



18. Inside-reverse-fold the tail up.



19. Narrow the tail by mountain-folding each side.



20. The finished Horseshoe Crab.

cattleya orchid

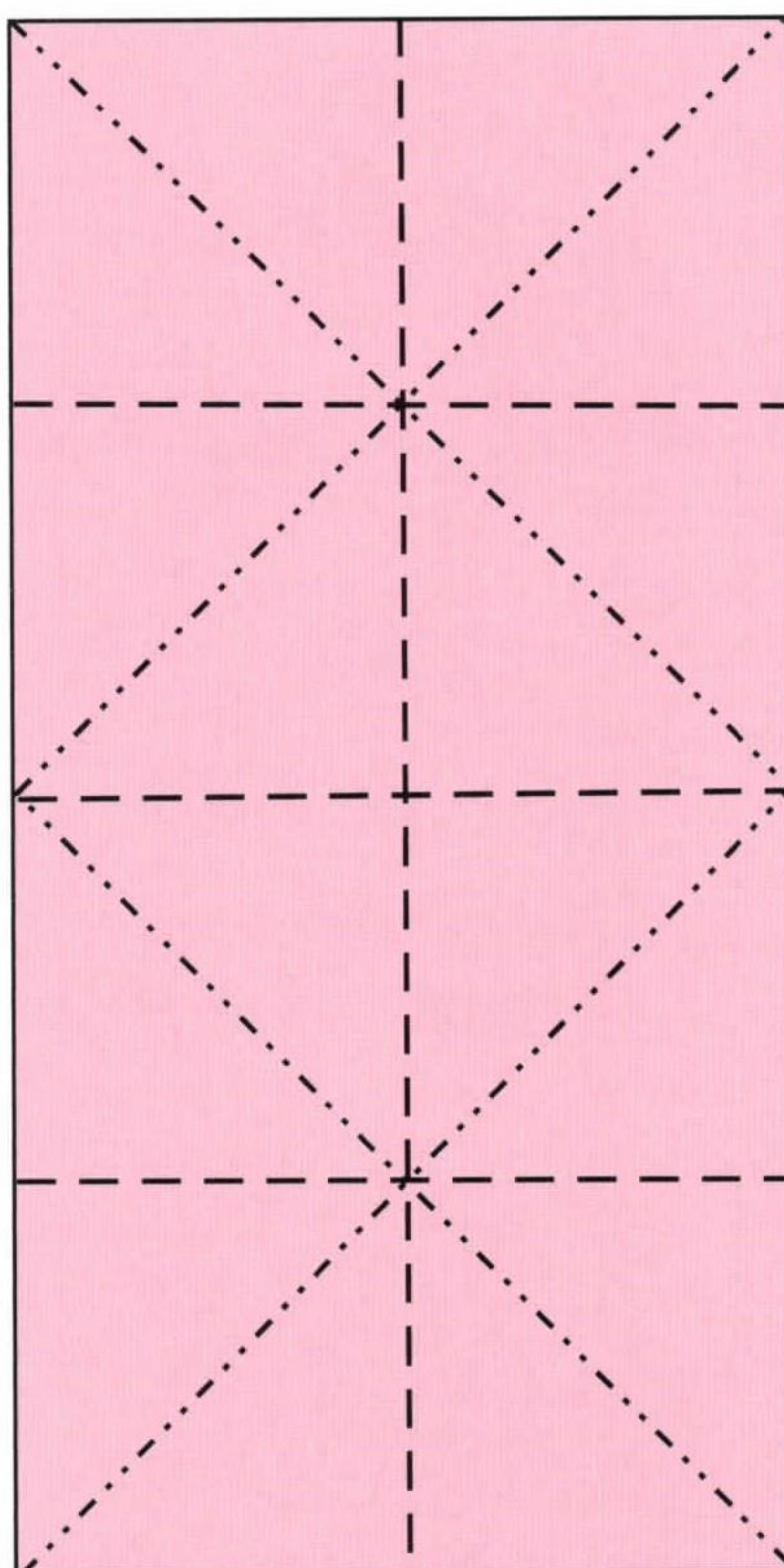
Designed by Michael G. LaFosse



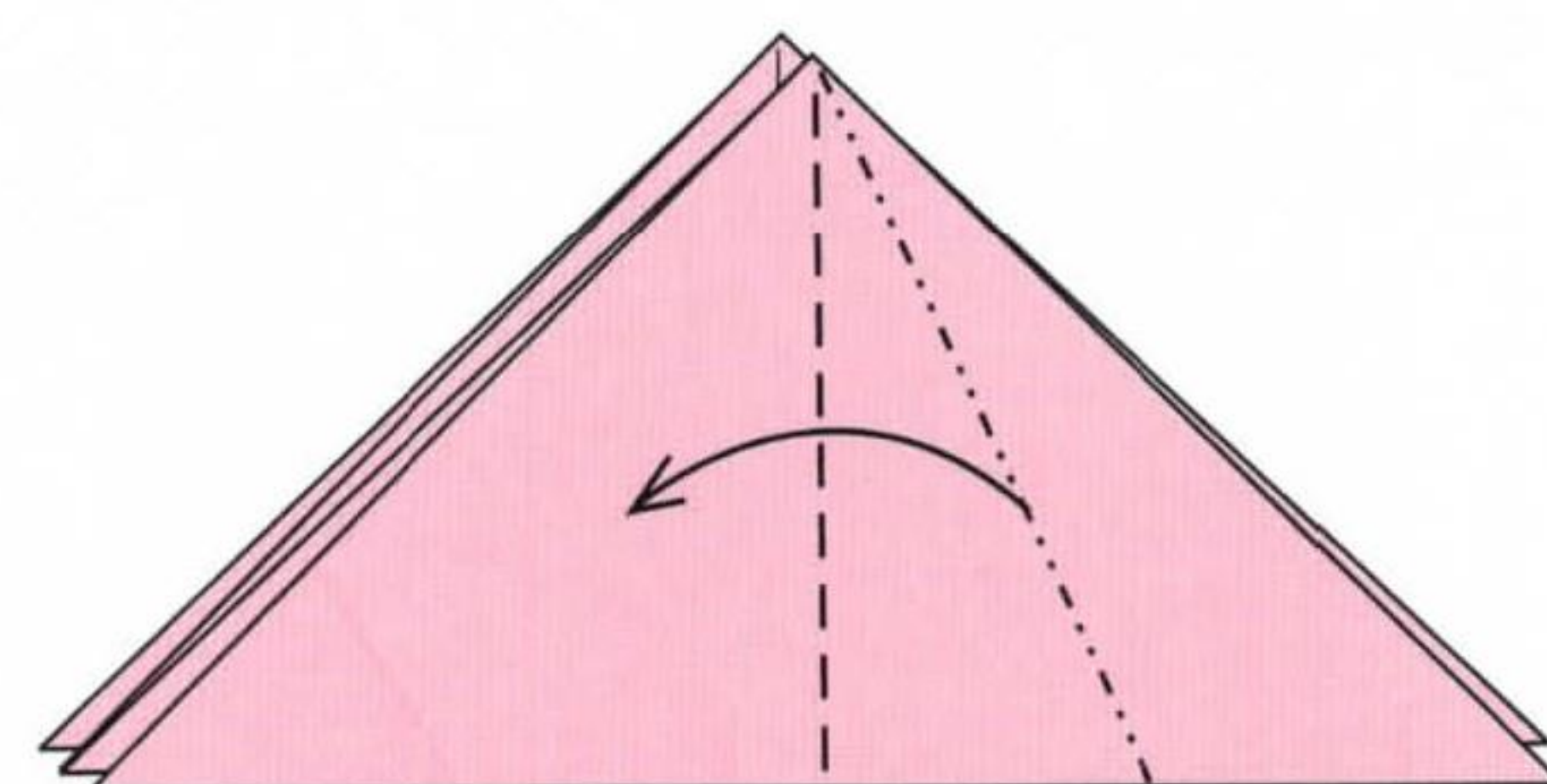
To me, the orchid evokes animal-like qualities more than any other flower. Orchids display a huge variety of forms, colors and textures, and you can explore this basic model with an equally wide universe of readily available papers. Since the initial steps are folded dry, they are fairly dull and mechanical, but at the end of the process we moisten the paper and bring the model to life with delicate shaping maneuvers. Your artistic senses will take charge as you create an object of beauty, worthy of gentle care, admiration and respect.

PAPER SUGGESTIONS

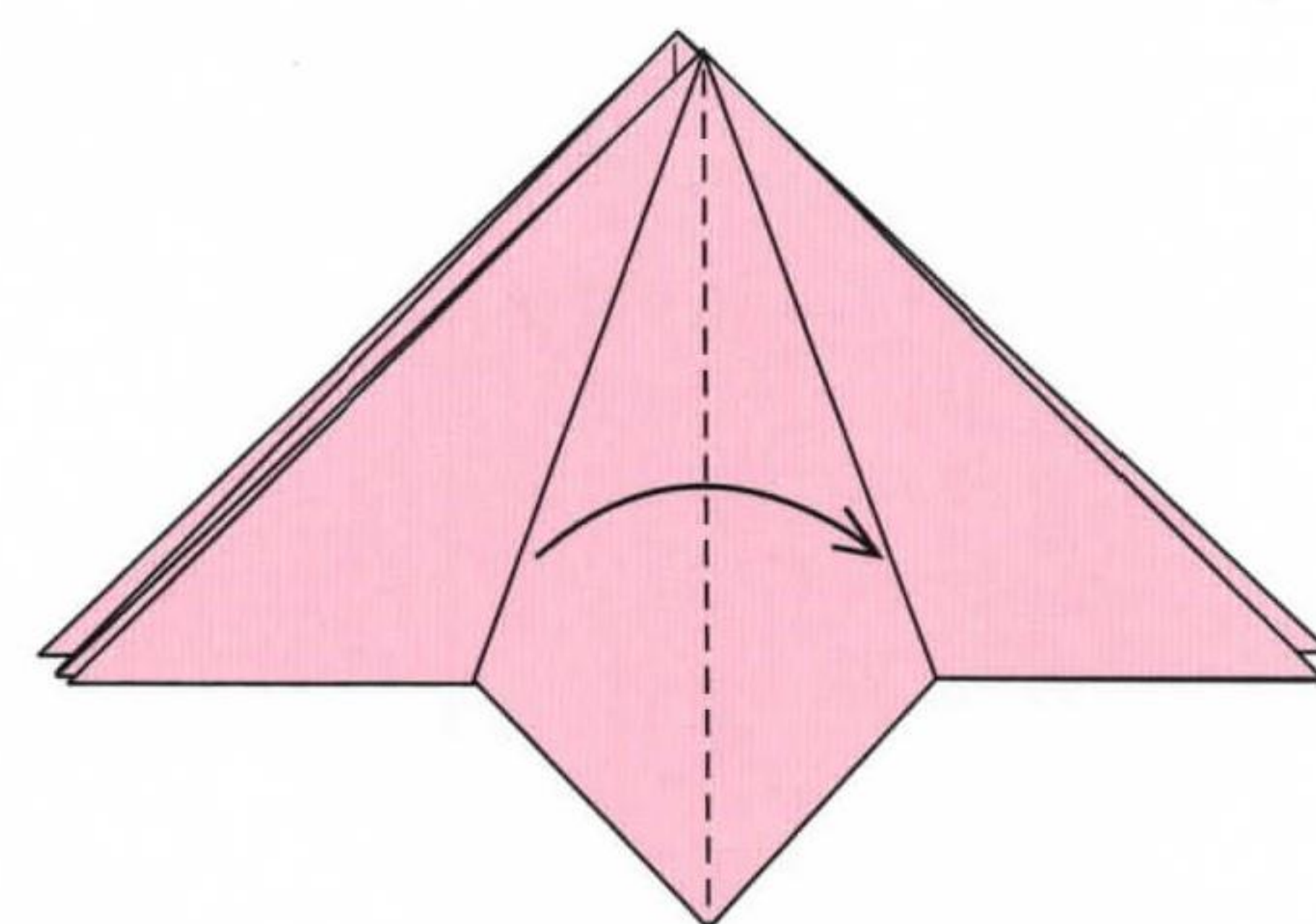
Begin with a rectangle of paper that is twice as wide as it is tall: 12 by 6 inches (30.5 by 15 cm) is a good minimum size. A rectangle that is 10 by 20 inches (25 by 50 inches) will produce an 8-inch (20-cm) orchid. Also, try folding this model from a duo-colored square. Begin by bringing the opposite edges to the center (this is known as a cupboard fold). The extra layers of paper will be available for you to use at the finishing steps to create contrasting colors on the petals or lip. (Also be sure to keep the split on the outside of the model as you make the initial folds.) Some of my orchids are even more lifelike because I creped the paper as I formed the sheets. This is not difficult but it does require practice. Think of crepe paper as a large, thin sheet pushed inward to make a smaller square. With uniform, nearly microscopic wrinkles, you can impart a texture that results from this additional material. When you need a little more paper, just stretch it back out! The orchid is the only model in this book that I sometimes fold with handmade crepe paper. You may use commercially available crepe papers but be aware that they are not permanent and the origami orchid will wither and fade, as a real blossom does, but perhaps over the course of a decade.



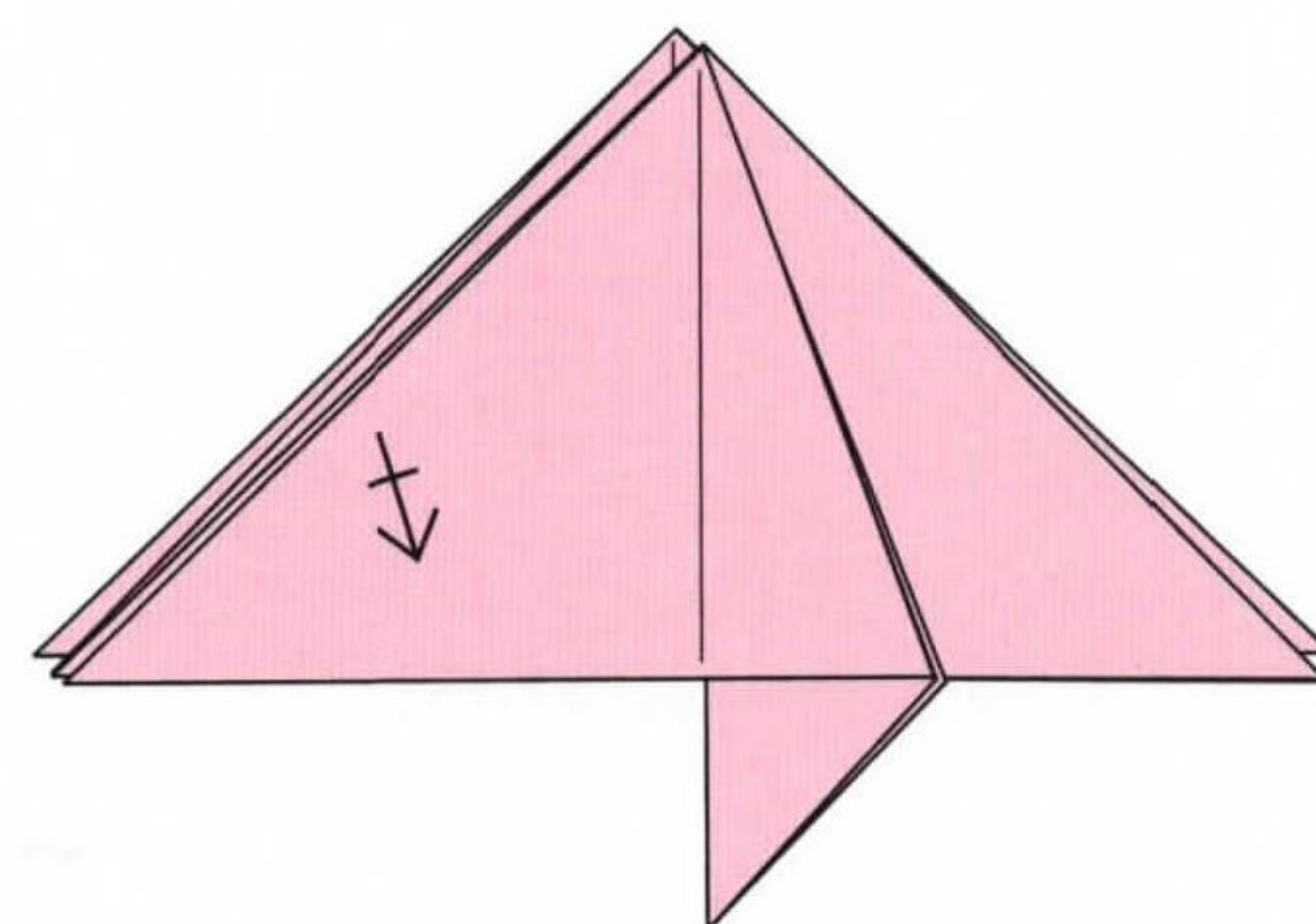
1. Valley-fold in half, long edge to long edge, and open. Valley-fold in half, short edge to short edge, and open. Valley-fold the two short edges to meet at the center and open. Mountain-fold all indicated diagonals. Use the creases to collapse the paper into the triangular shape illustrated in step 2.



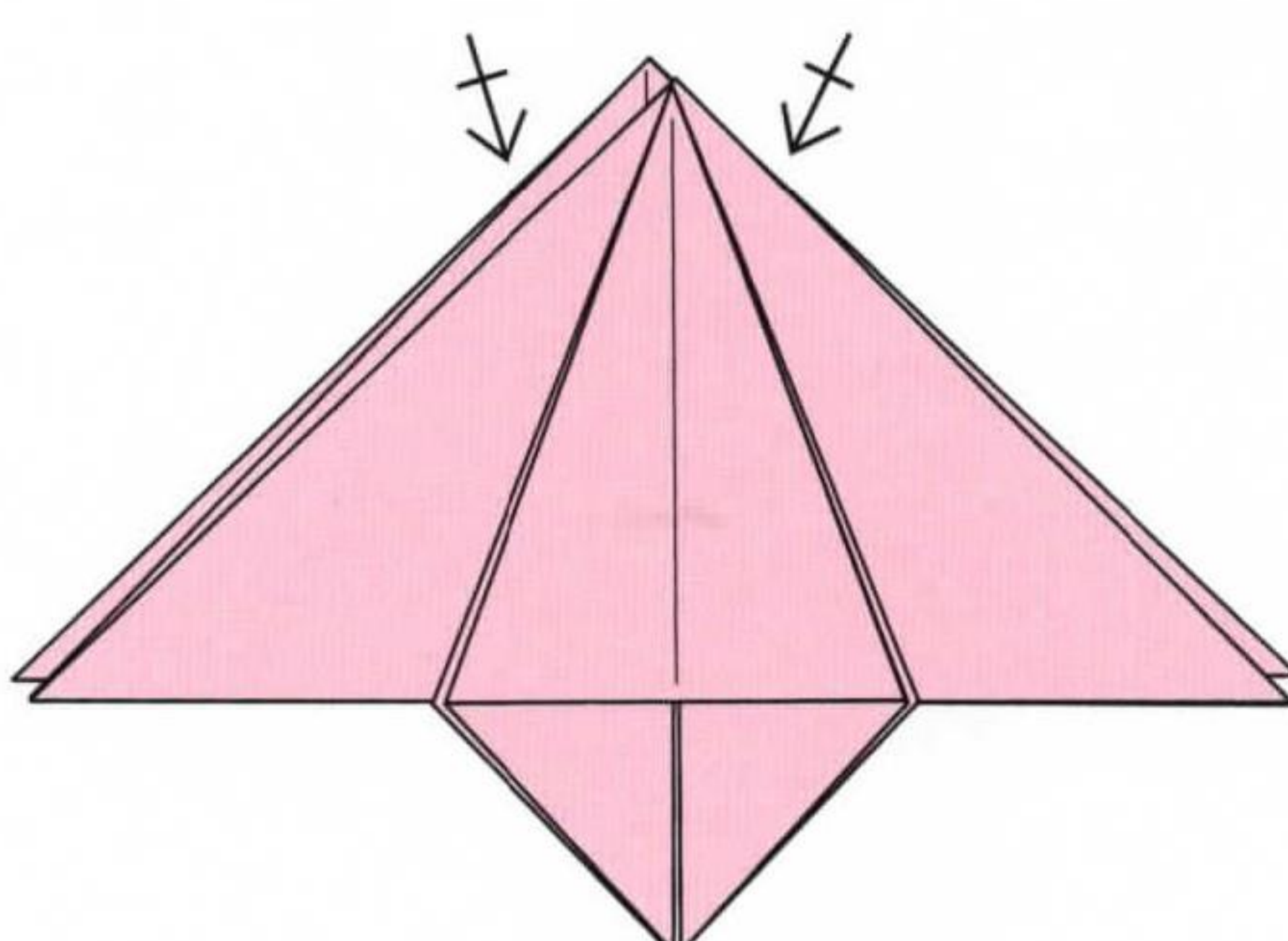
2. Squash-fold the top right side point.



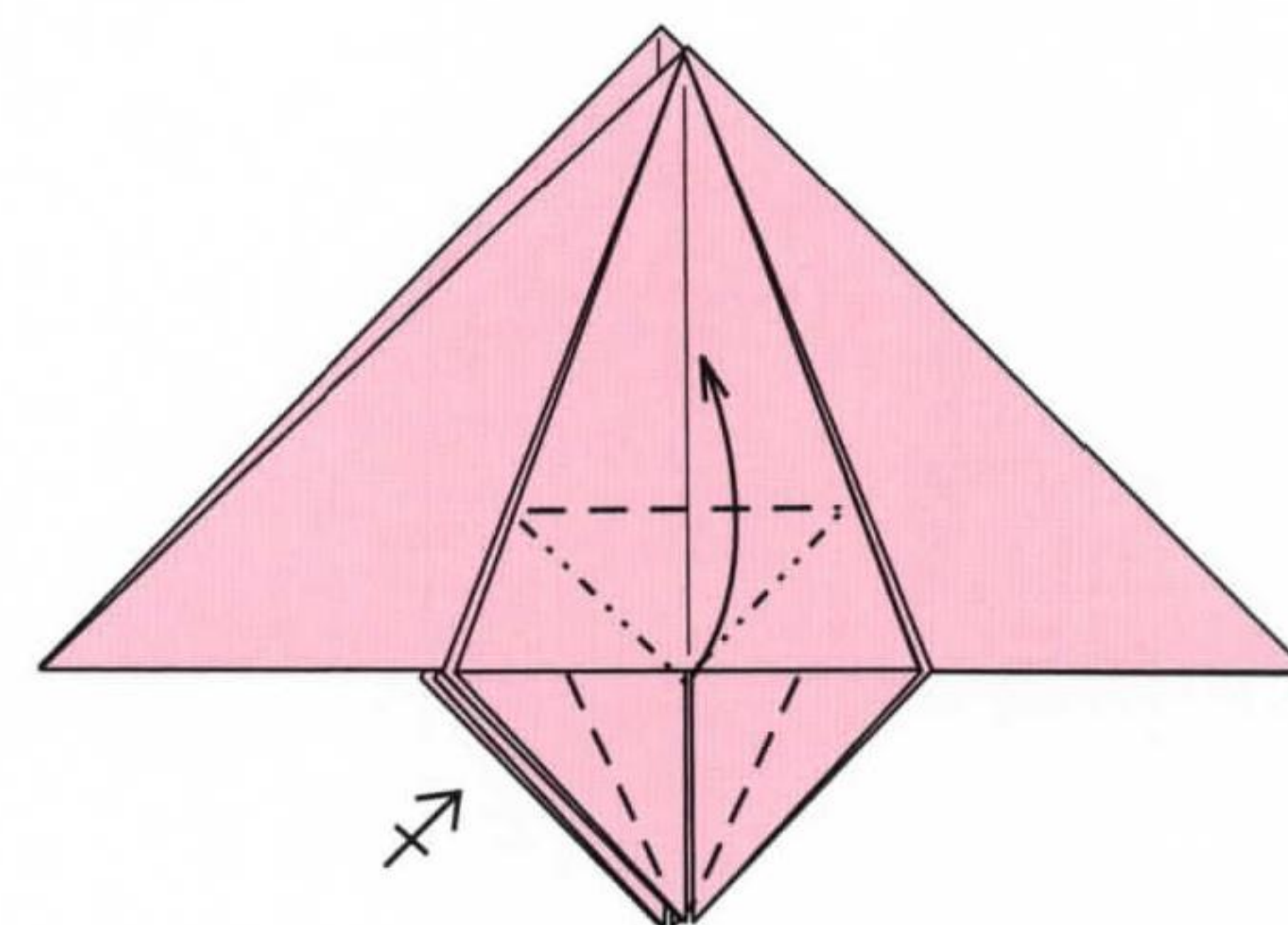
3. Valley-fold to the right.



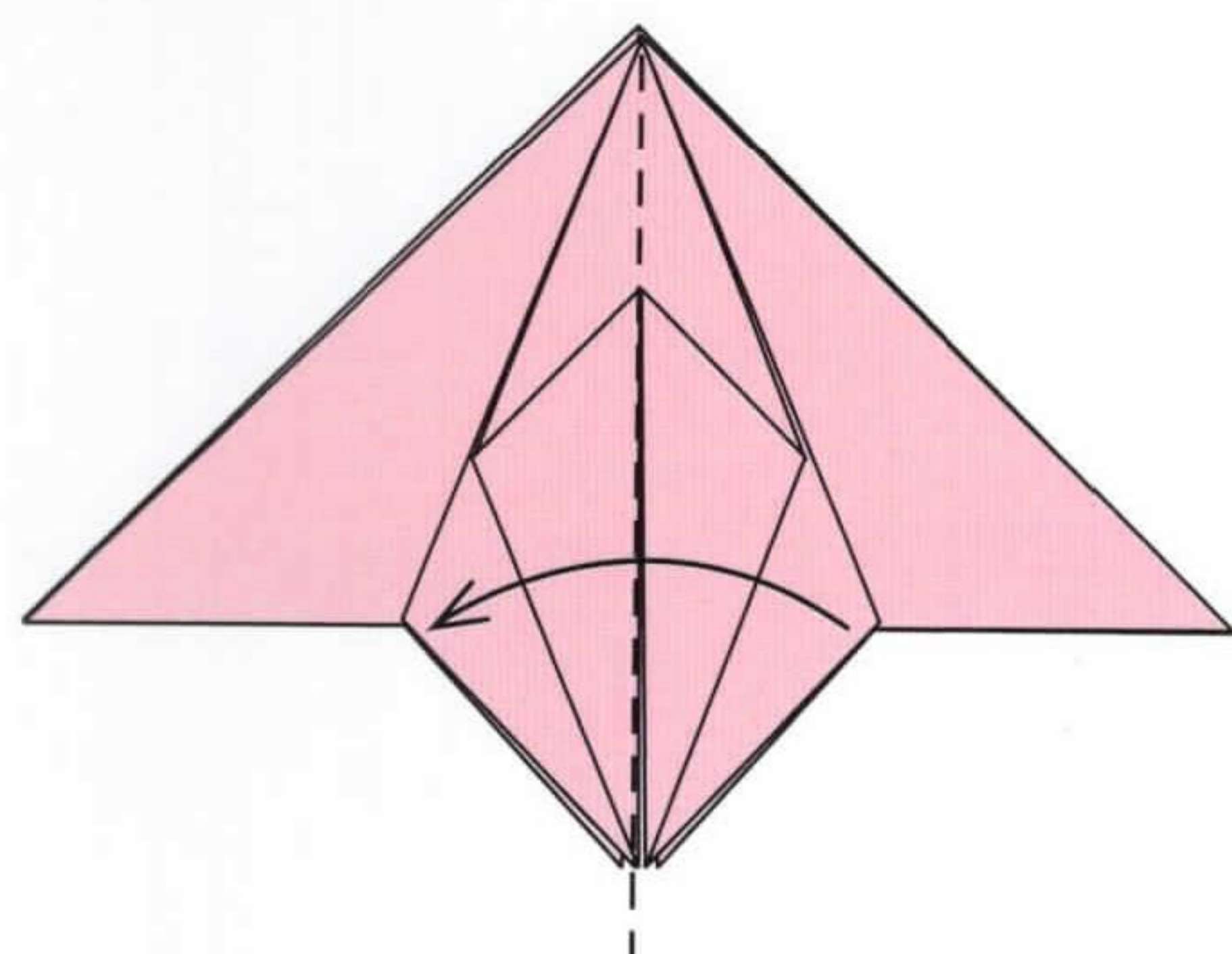
4. Repeat steps 2 and 3 on the left side.



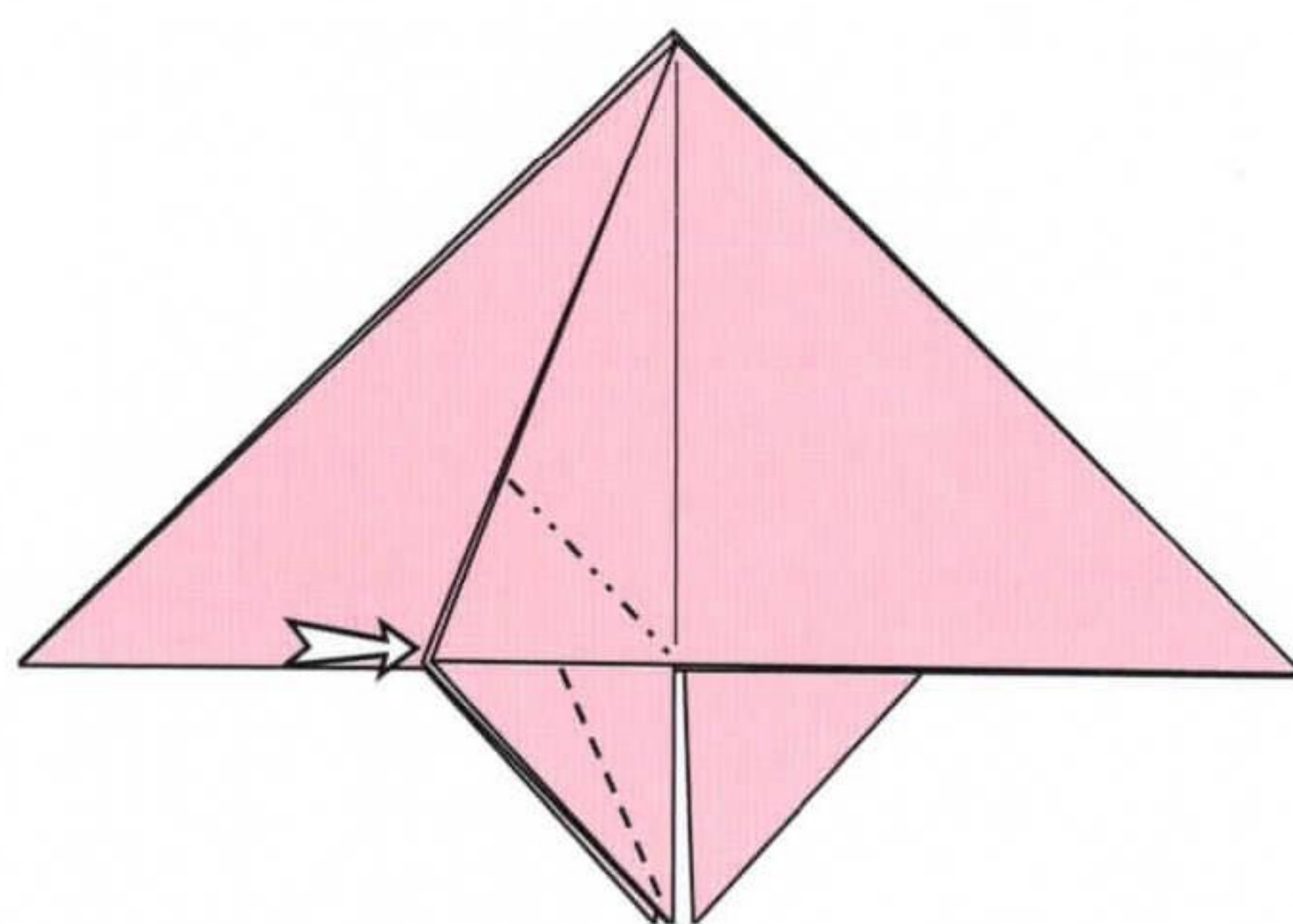
5. Repeat steps 2 through 4 on the back. You will have performed four squashes and all layers will have been arranged symmetrically.



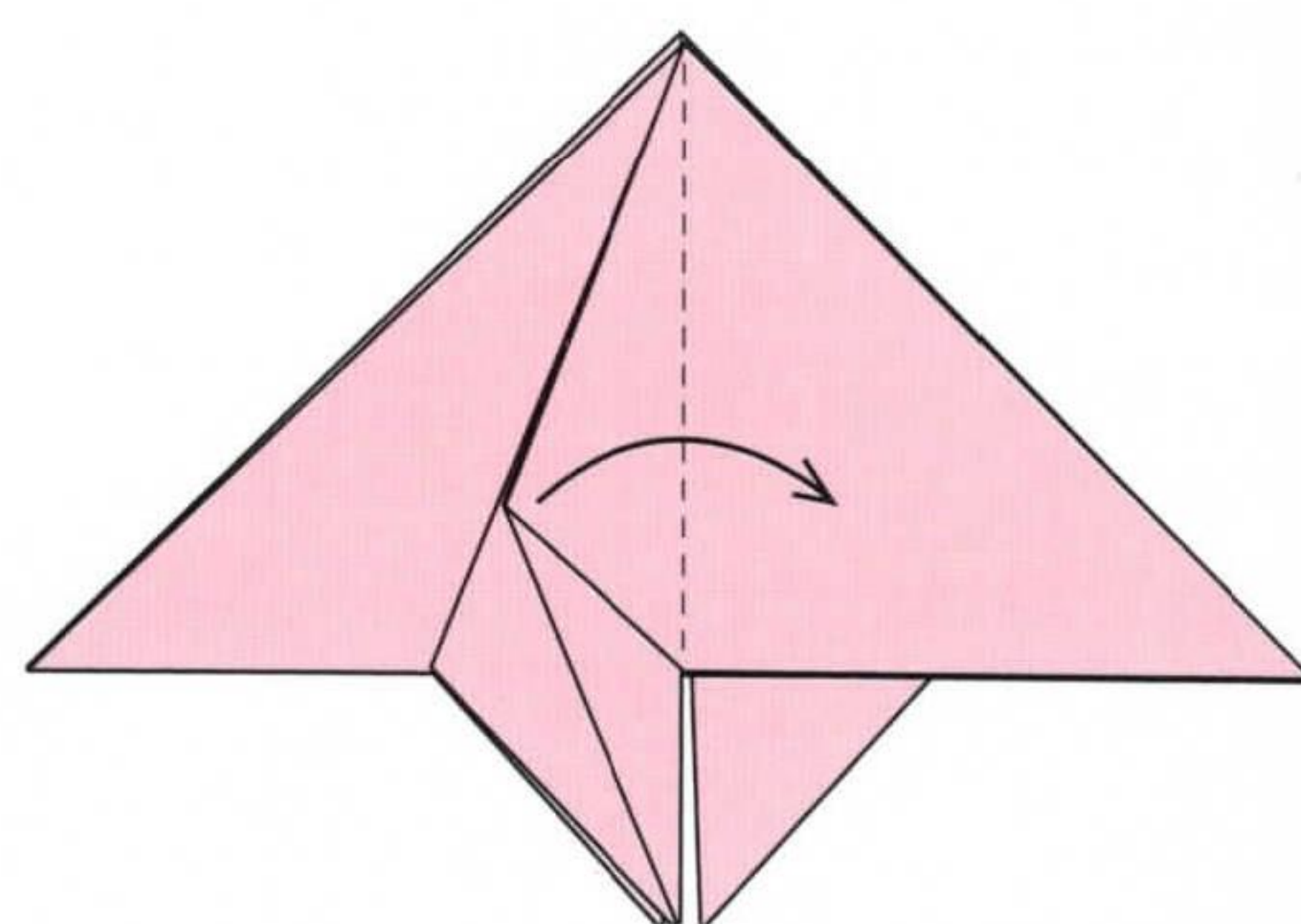
6. Mountain-fold the middle of the indicated free edge up while valley-folding the lower free edges to align with their centered folded edges. This is a petal fold. Repeat behind.



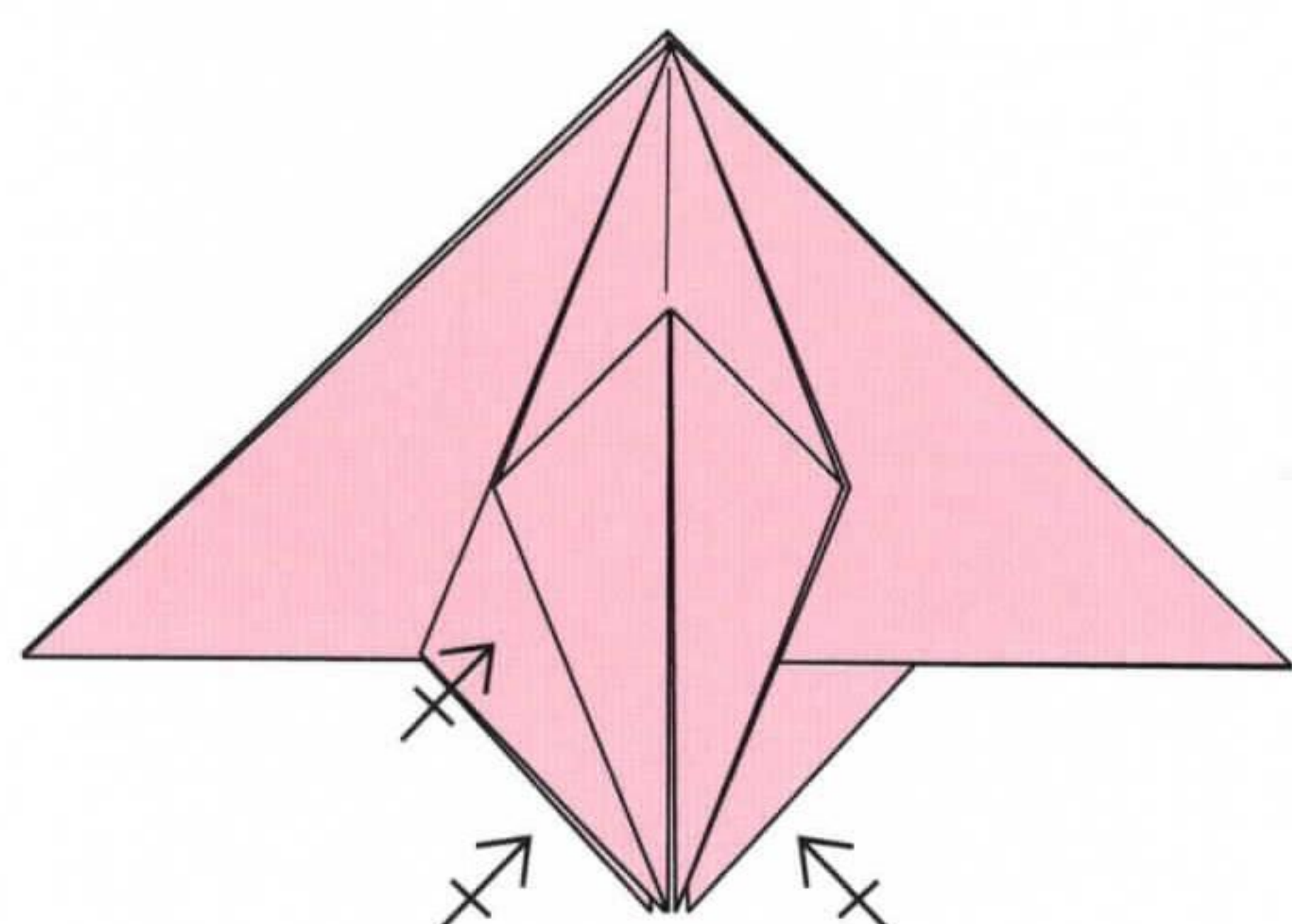
7. Fold both layers of the right half of the kite shape to the left.



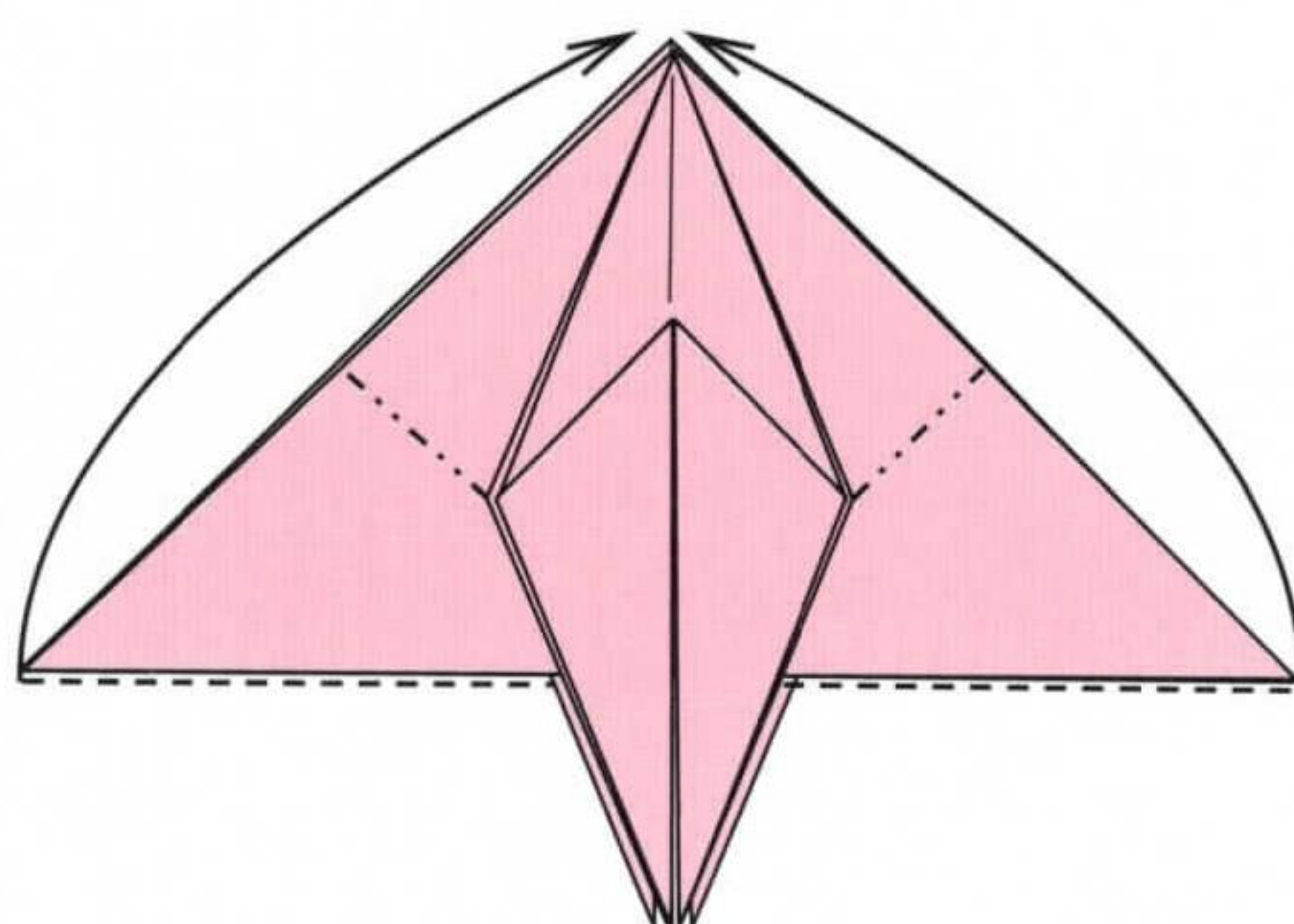
8. Inside-reverse-fold.



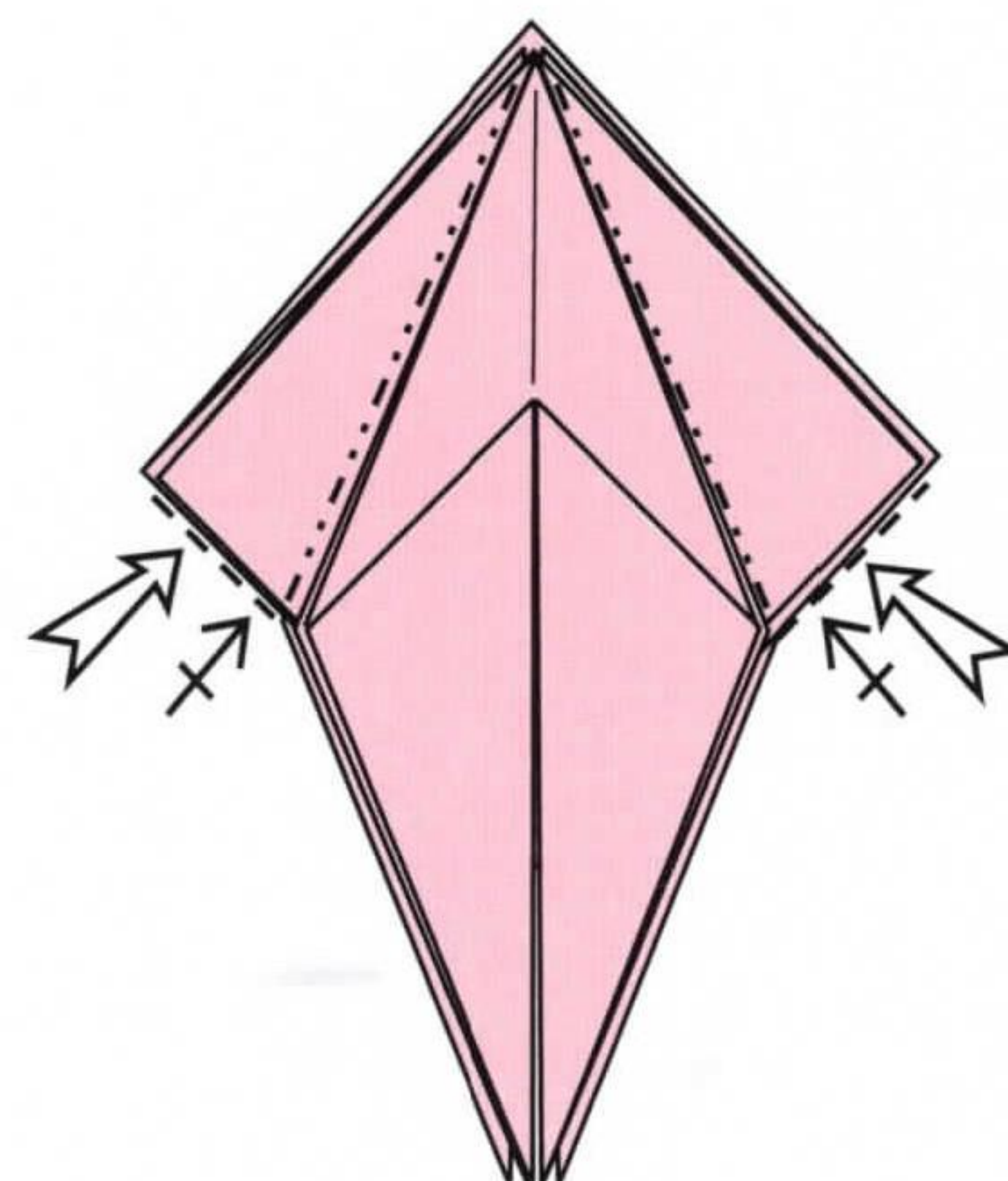
9. Fold the two top layers to the right.



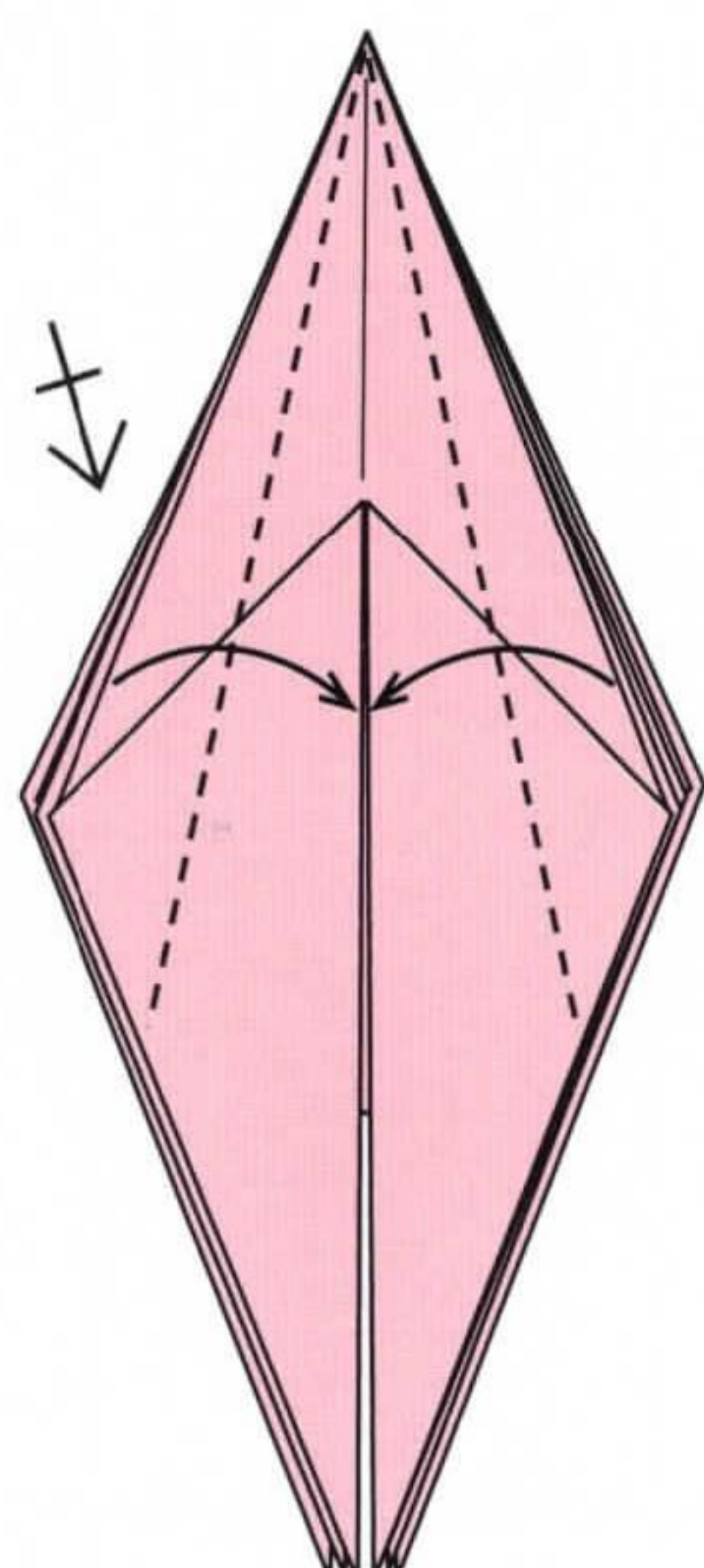
10. Repeat steps 7 through 9 on the front left side and to both sides at the back.



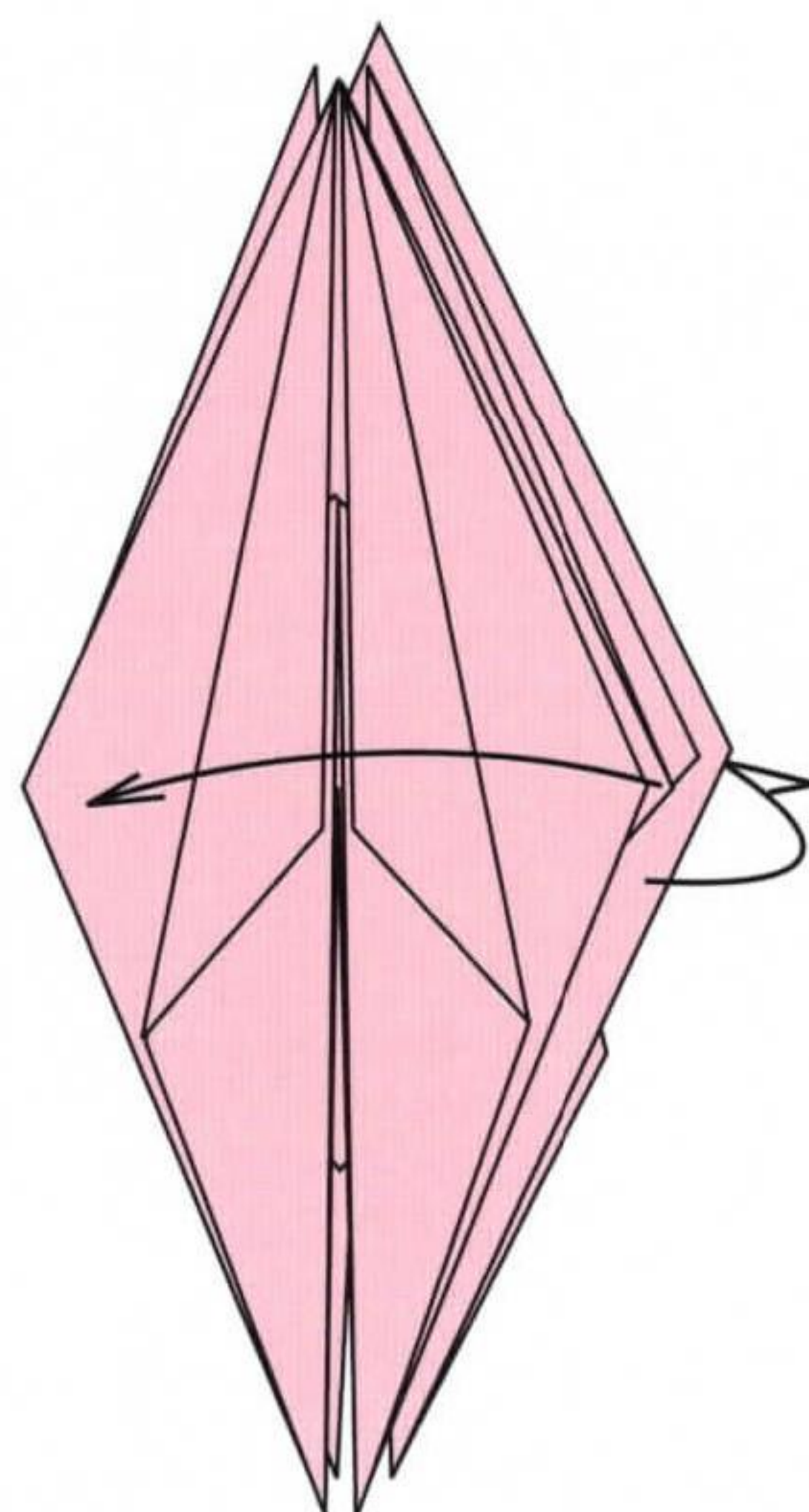
11. Inside-reverse-fold the large middle corners up.



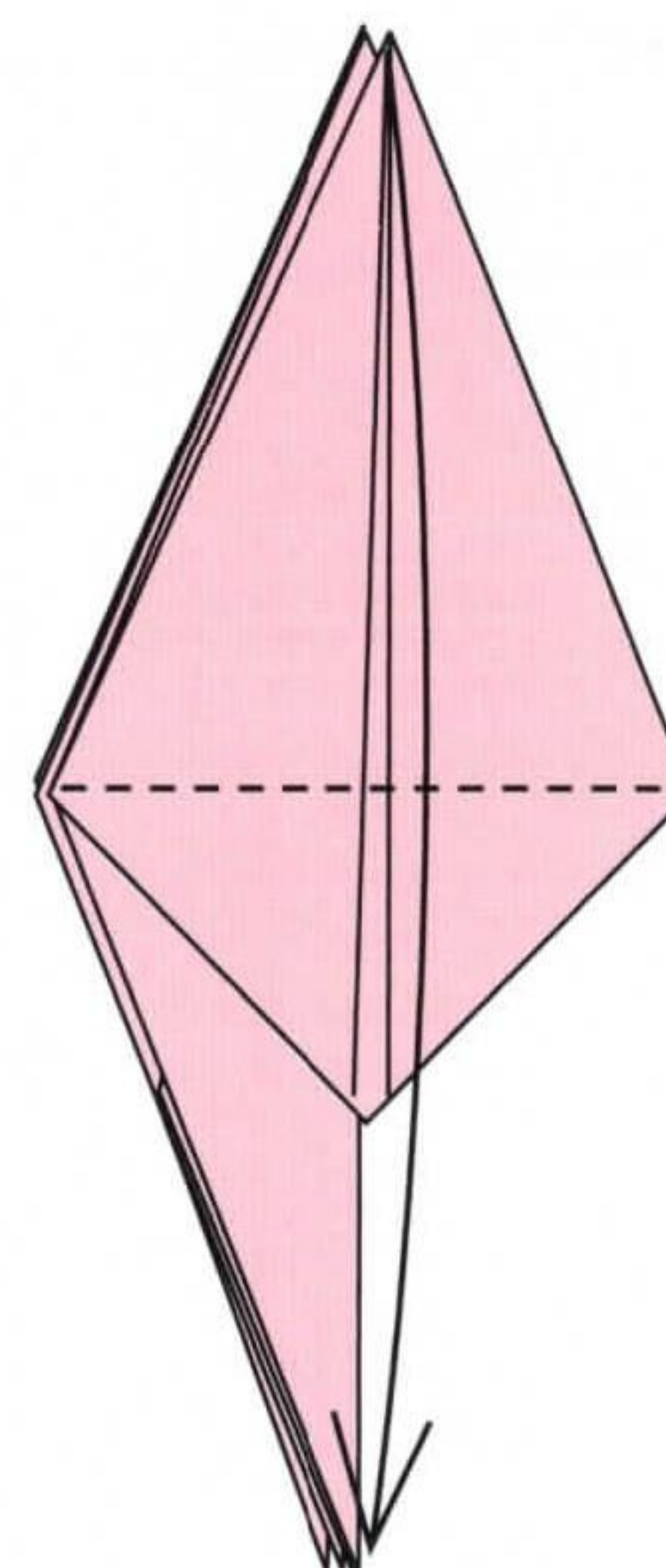
12. Inside-reverse-fold these four square corners.



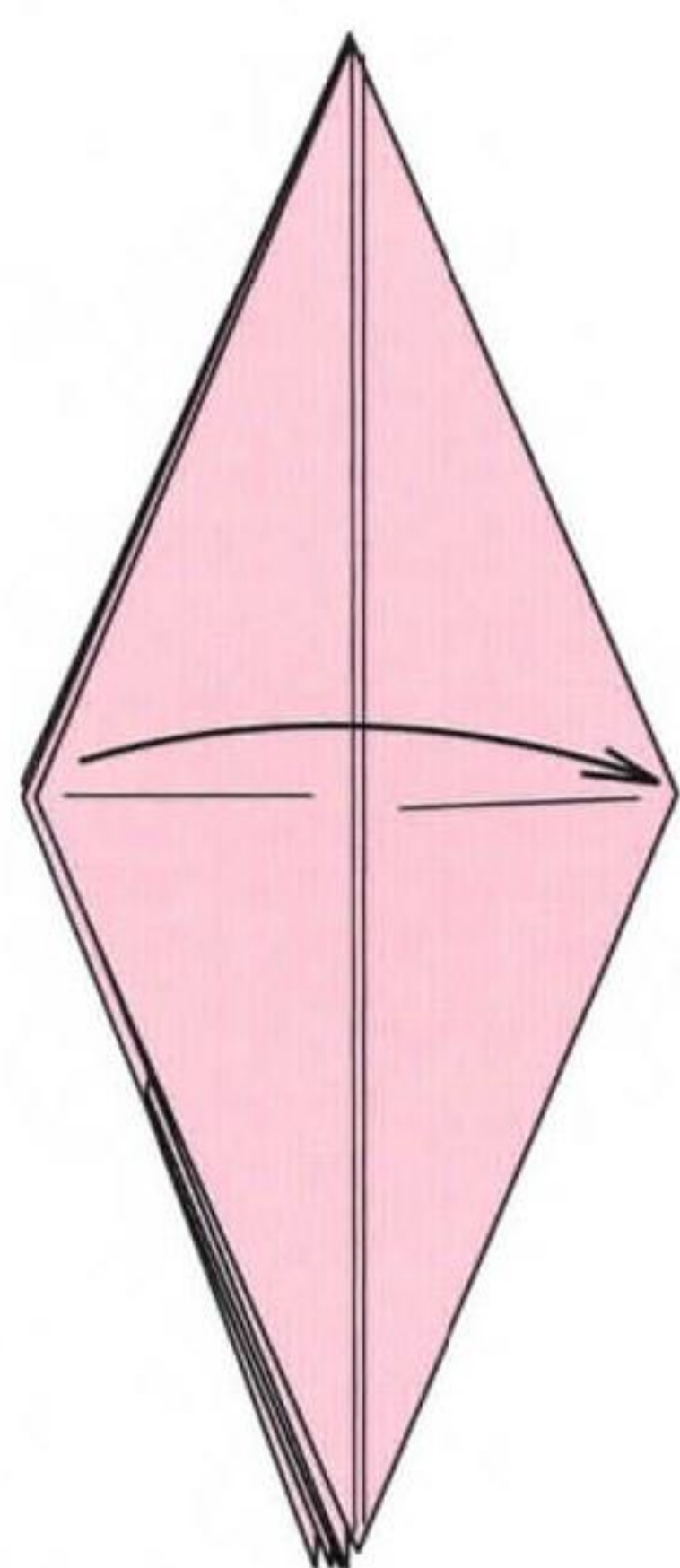
13. Fold in the top edges of the first layer to meet close to the center. Leave a little space. Repeat on the back.



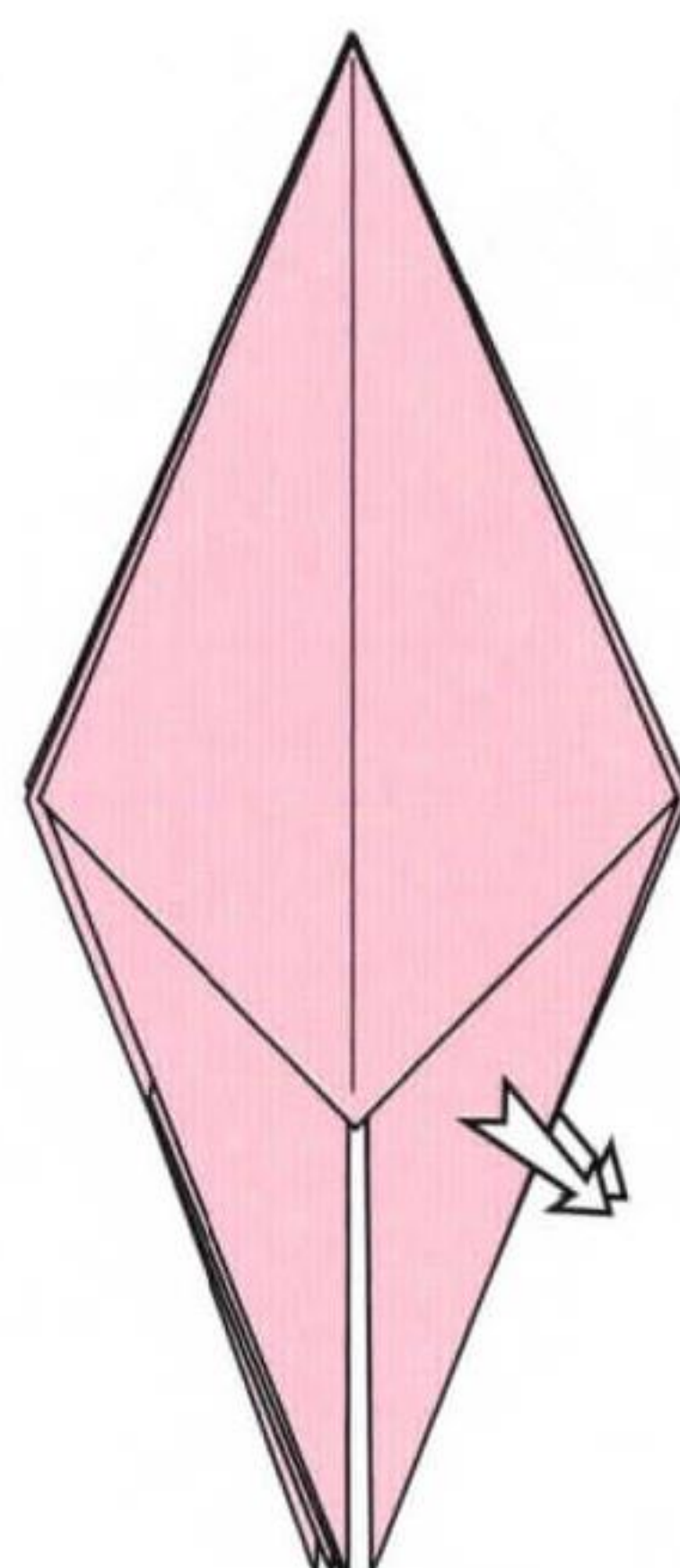
14. Fold the first three front layers to the left. Repeat with two layers on the back.



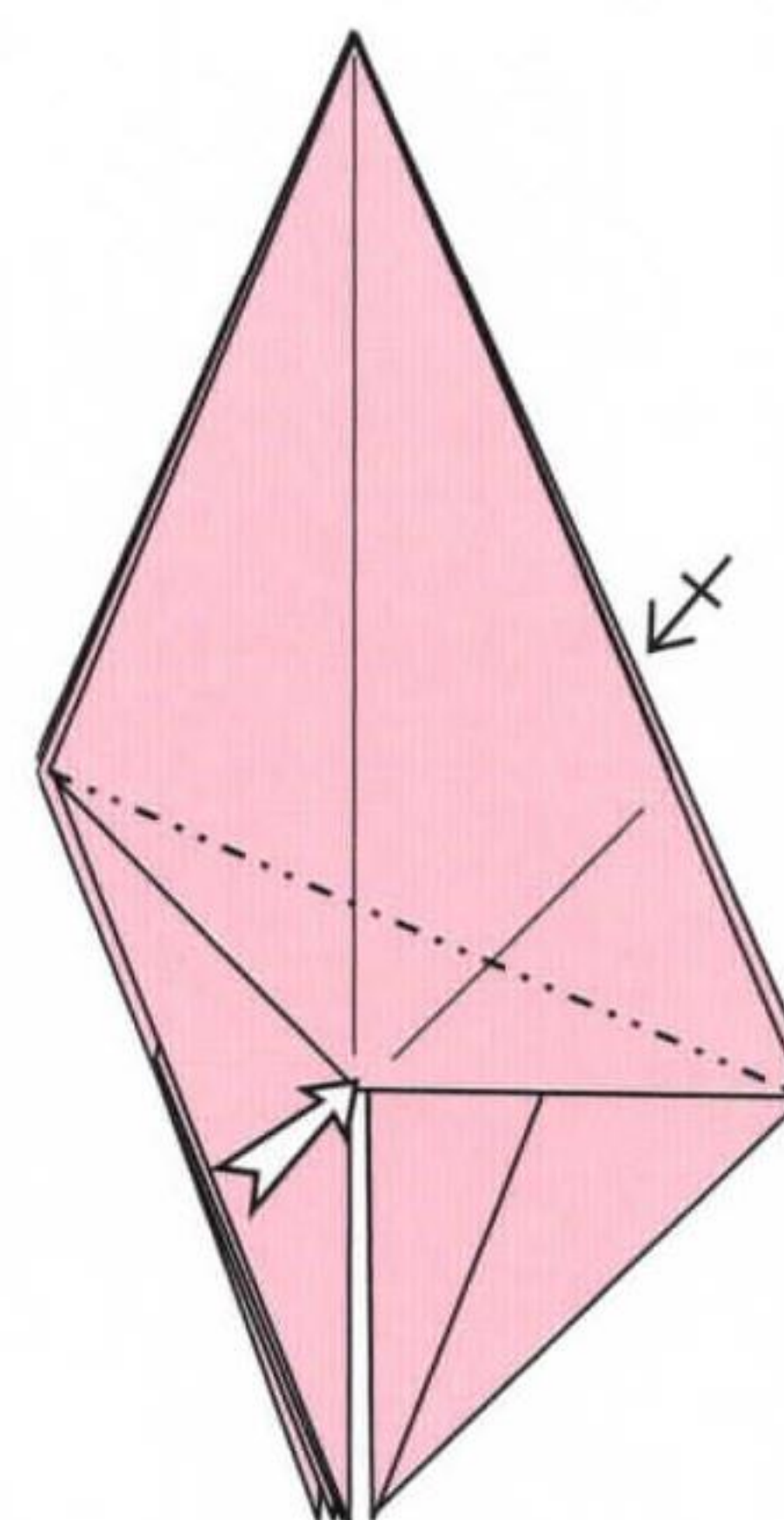
15. All full-length layers should now be on the left. Fold down the top point.



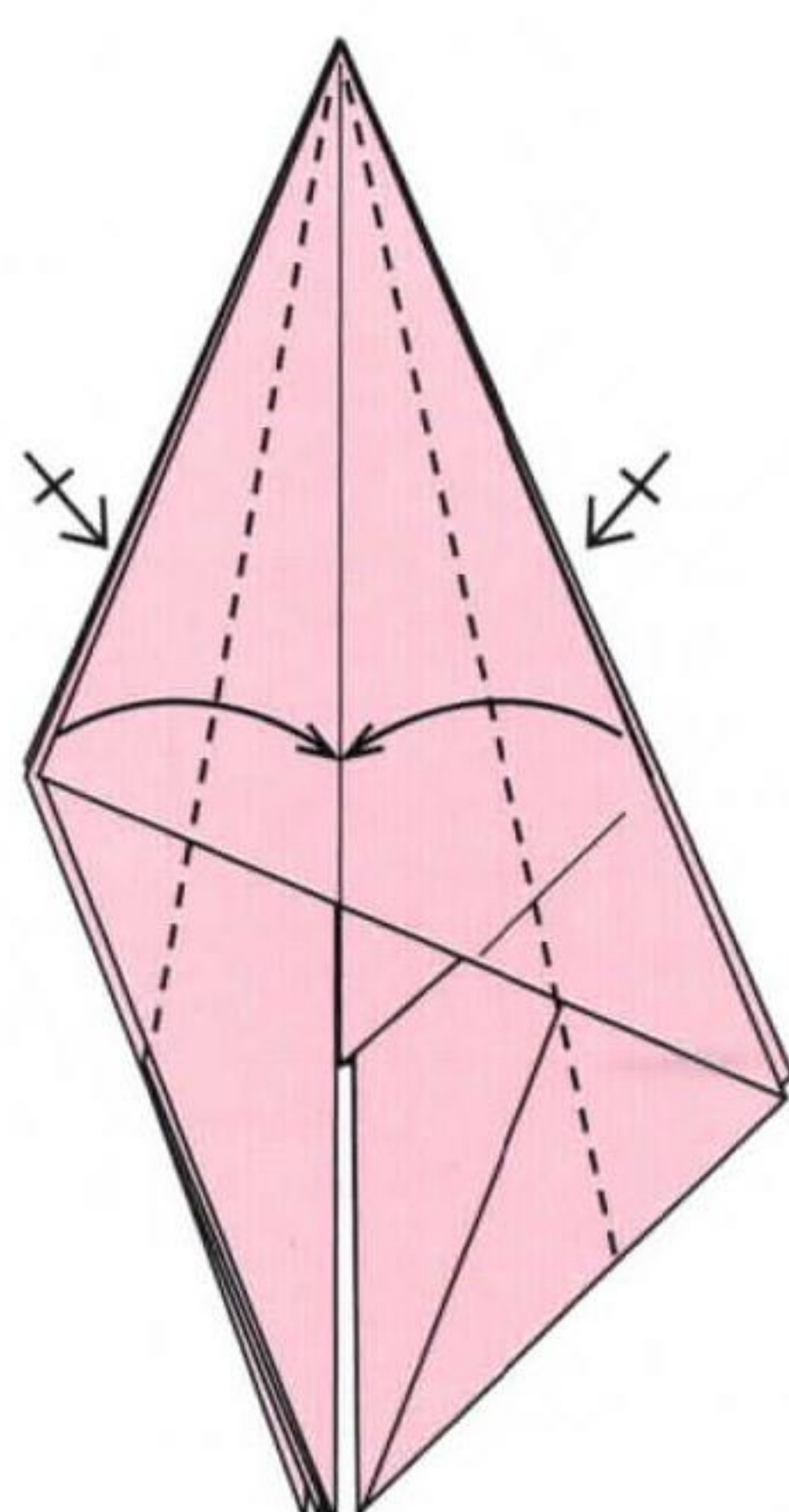
16. Fold the top layer to the right.



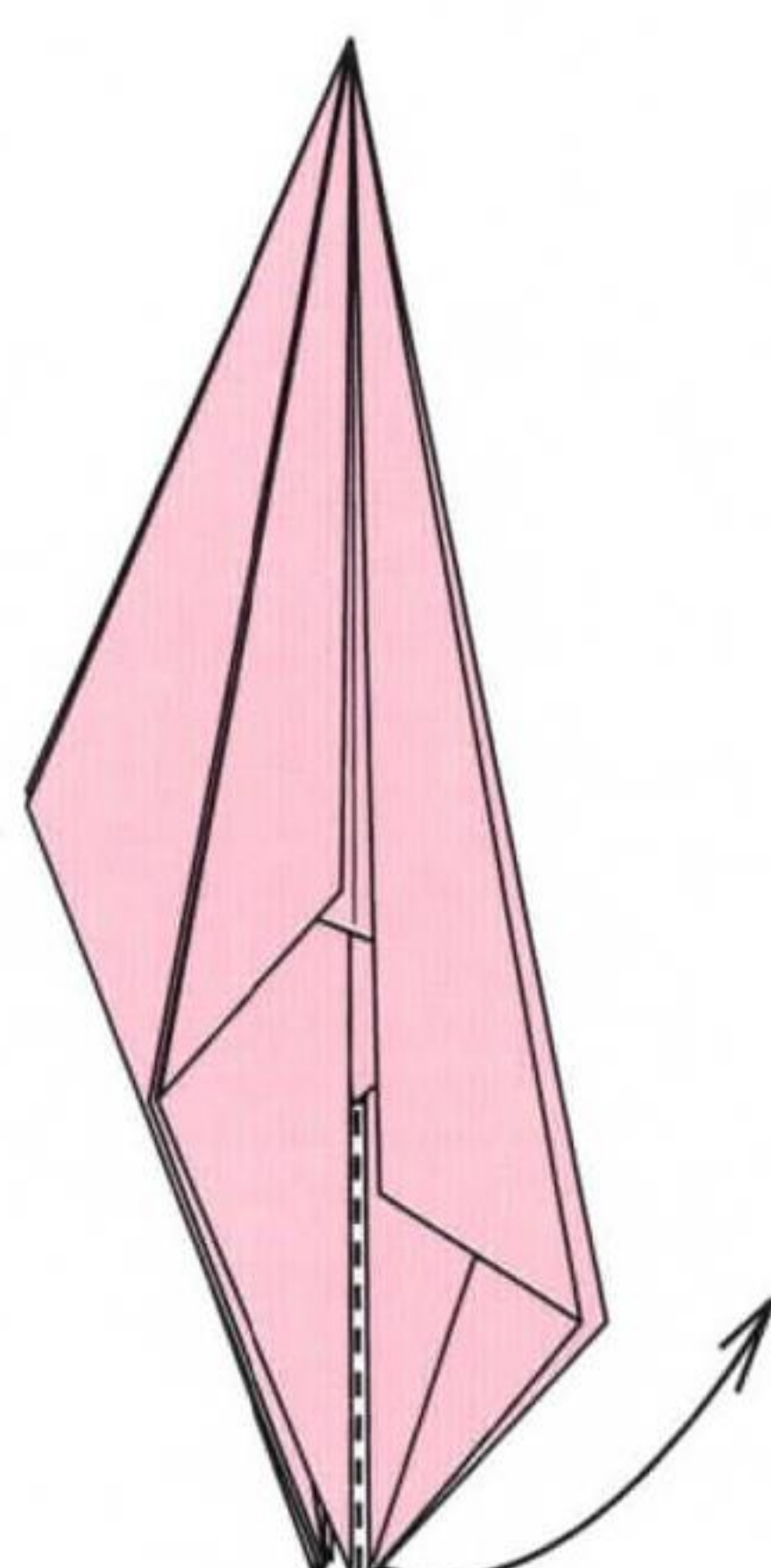
17. Free the indicated layers by pulling them out, front and back.



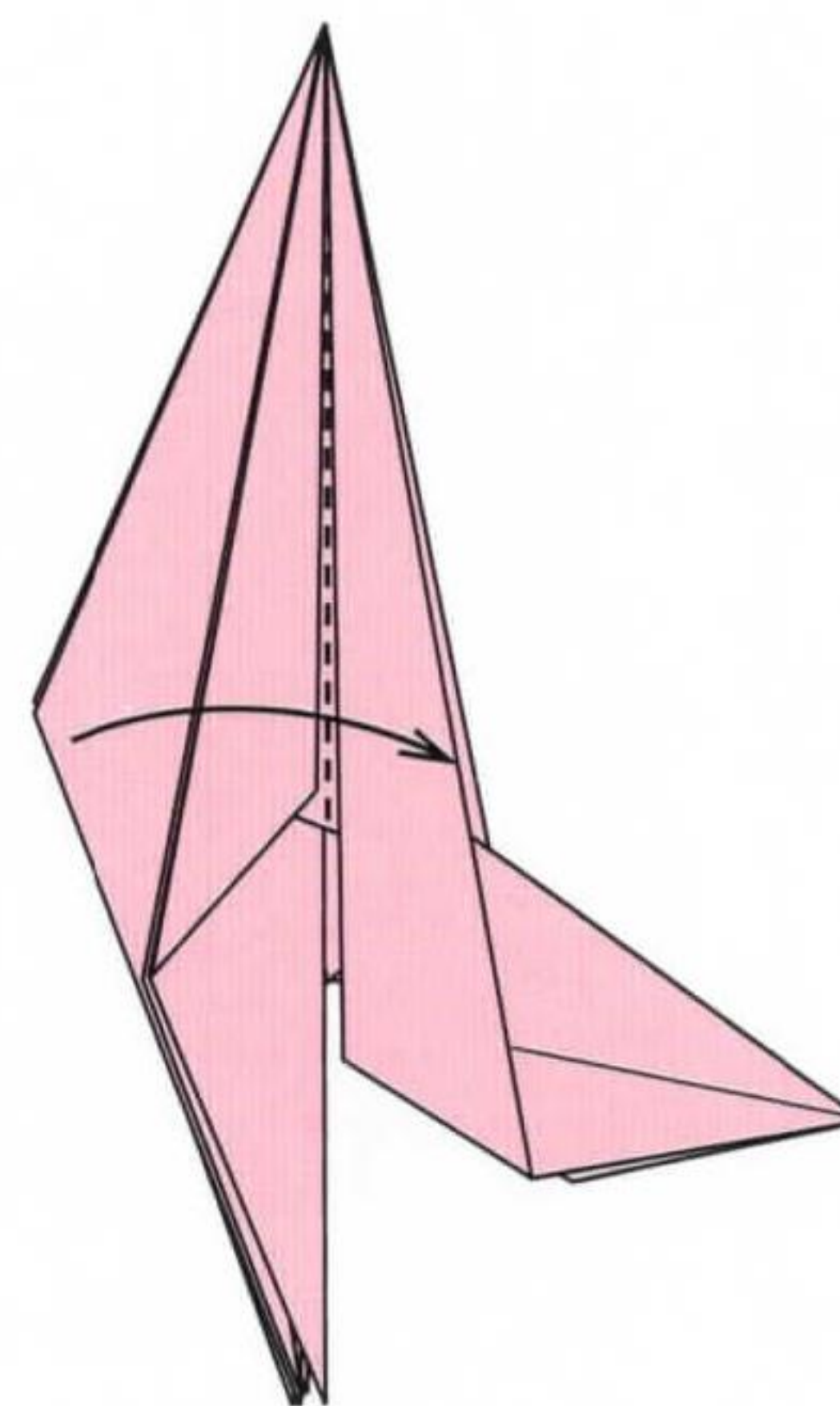
18. Mountain-fold the layer in. Repeat behind.



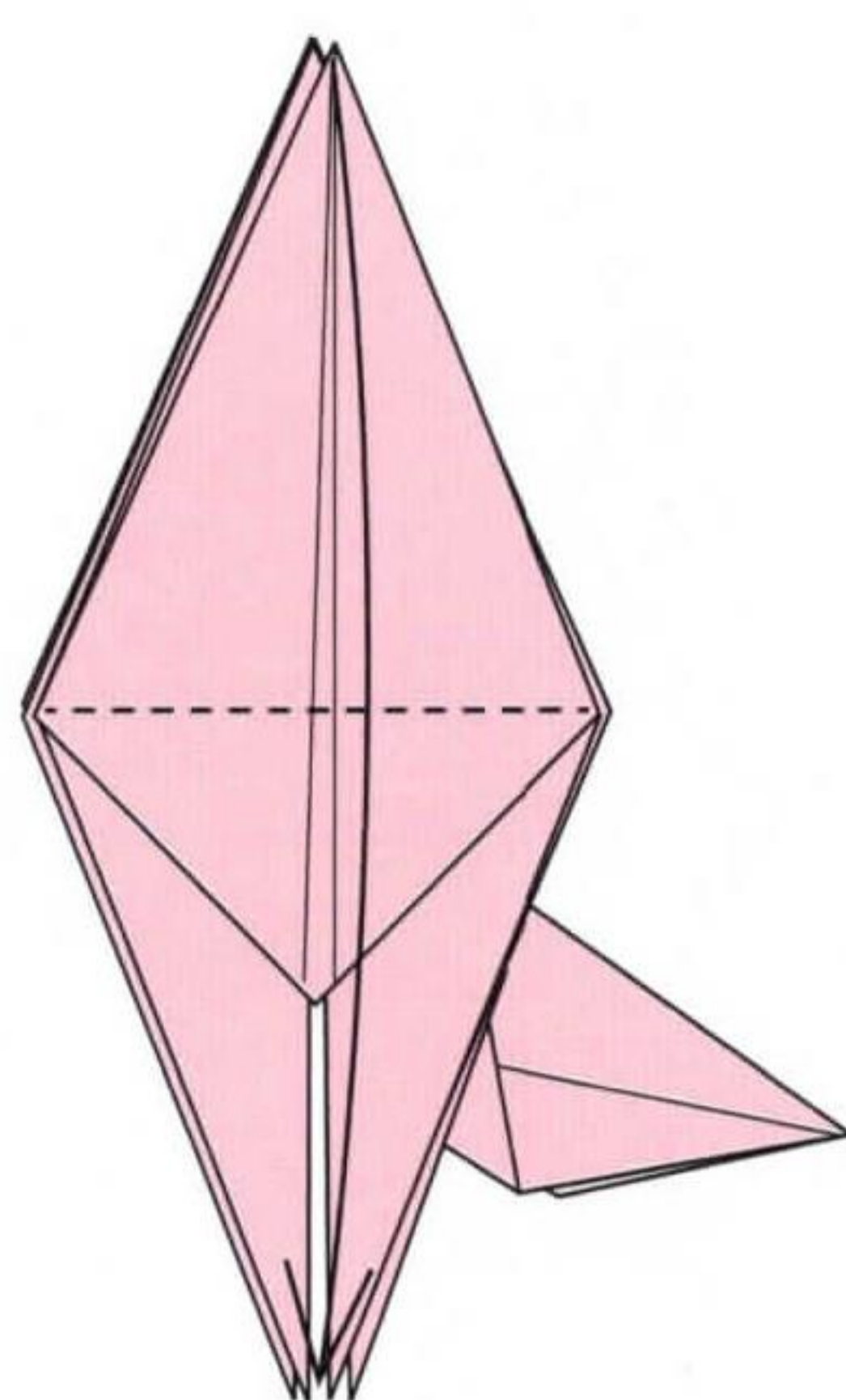
19. Fold the top edges in, close to the center but not all the way. Repeat behind.



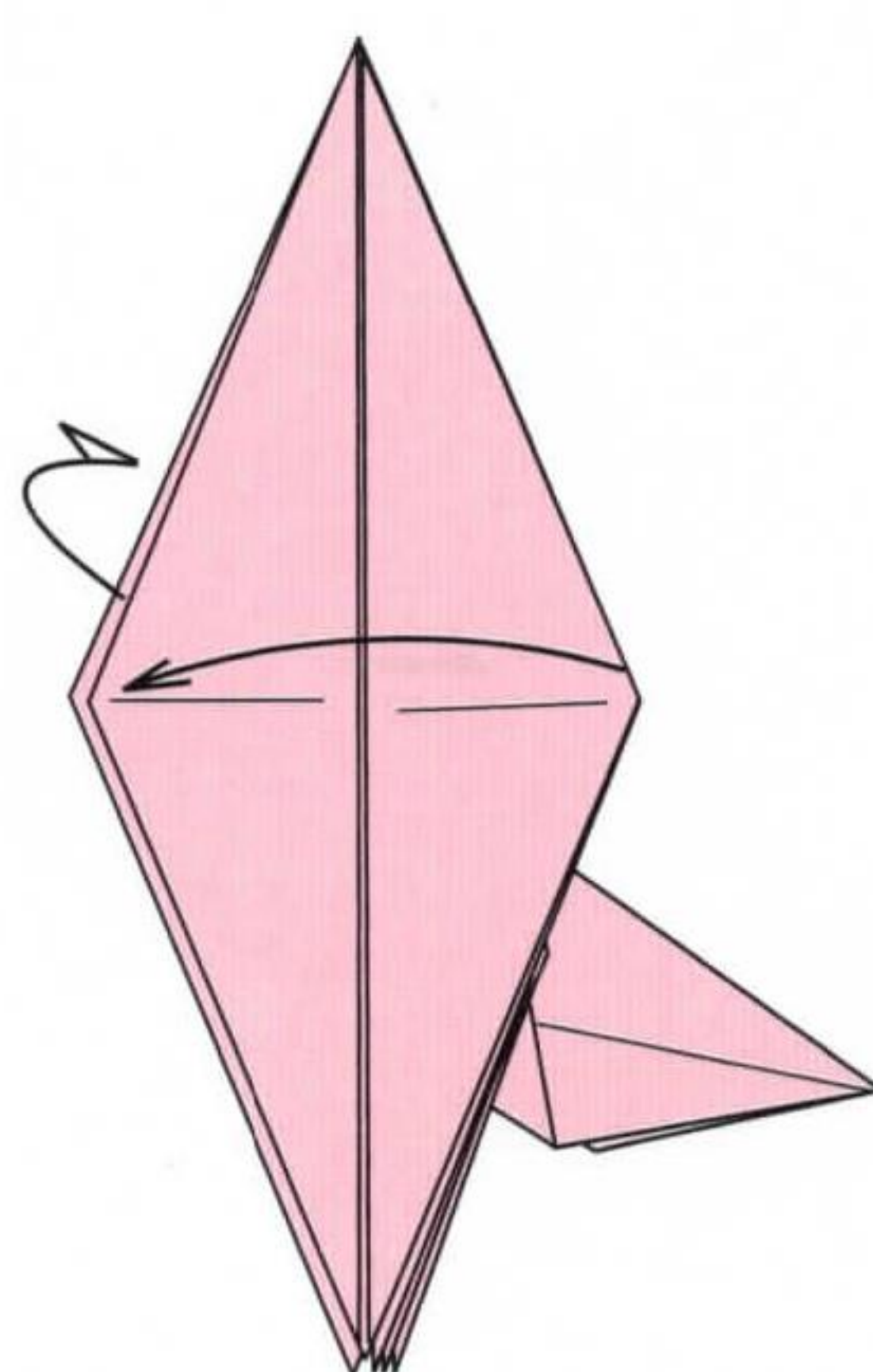
20. Inside-reverse-fold.



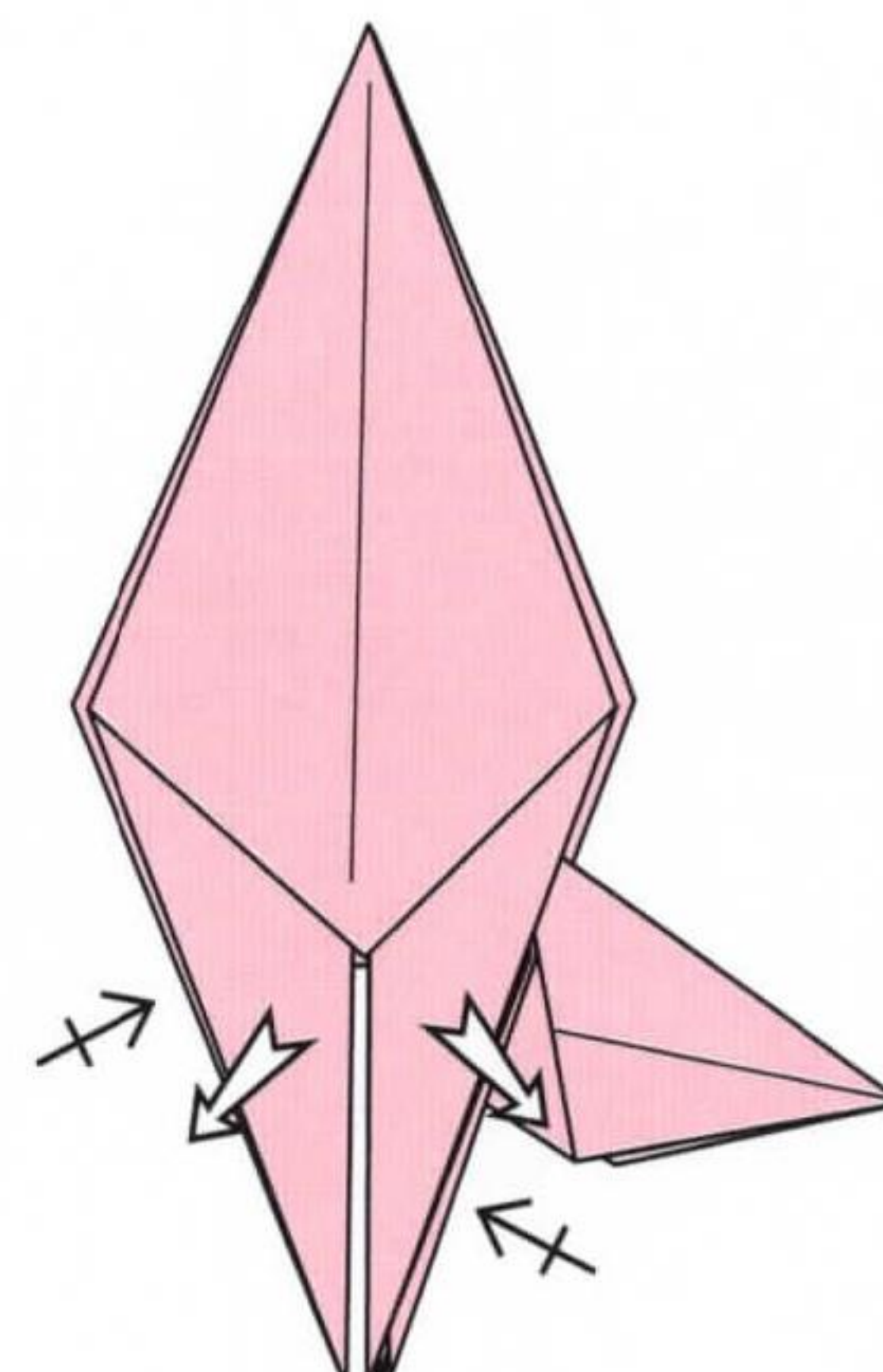
21. Fold to the right.



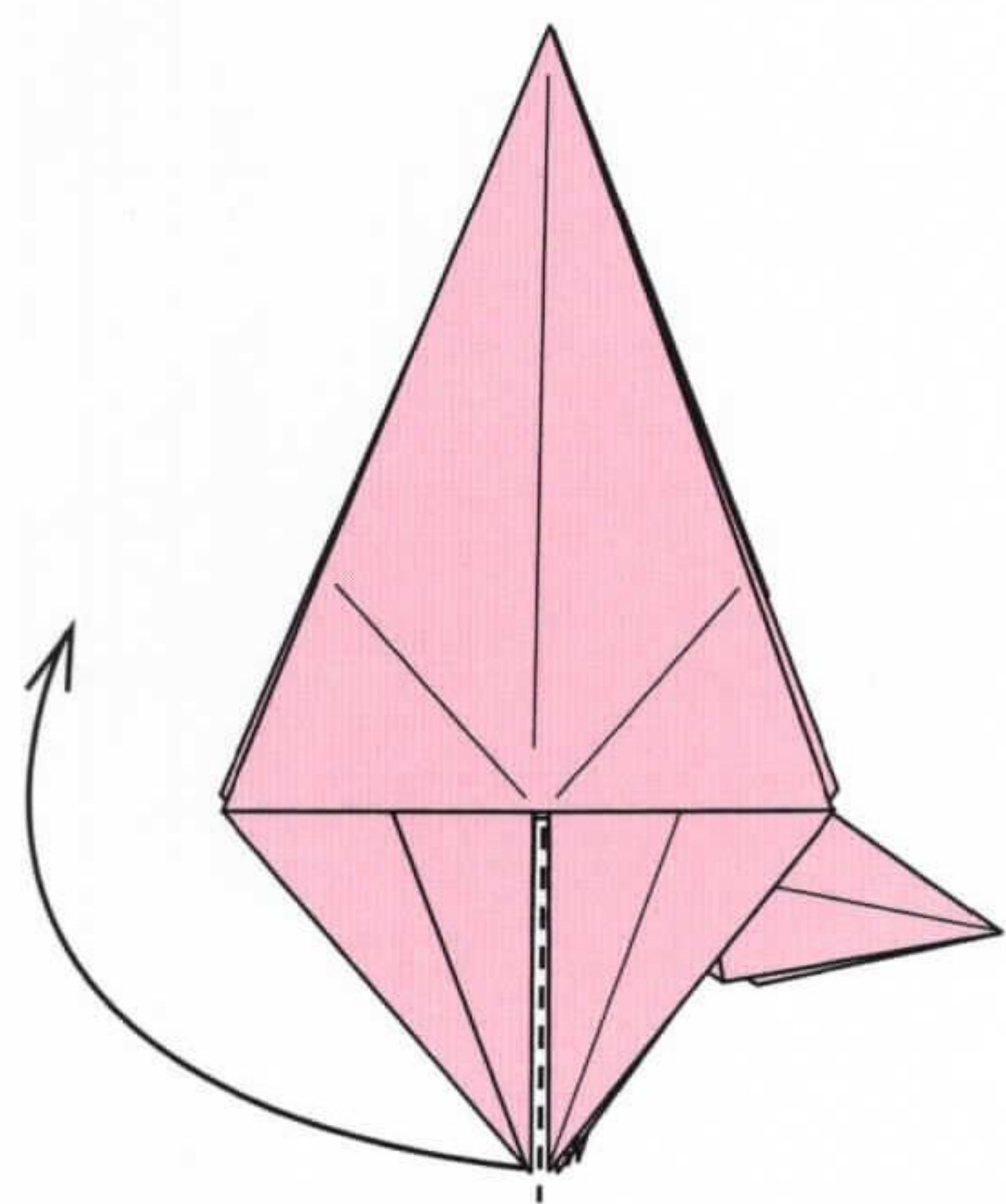
22. Fold the top point down.



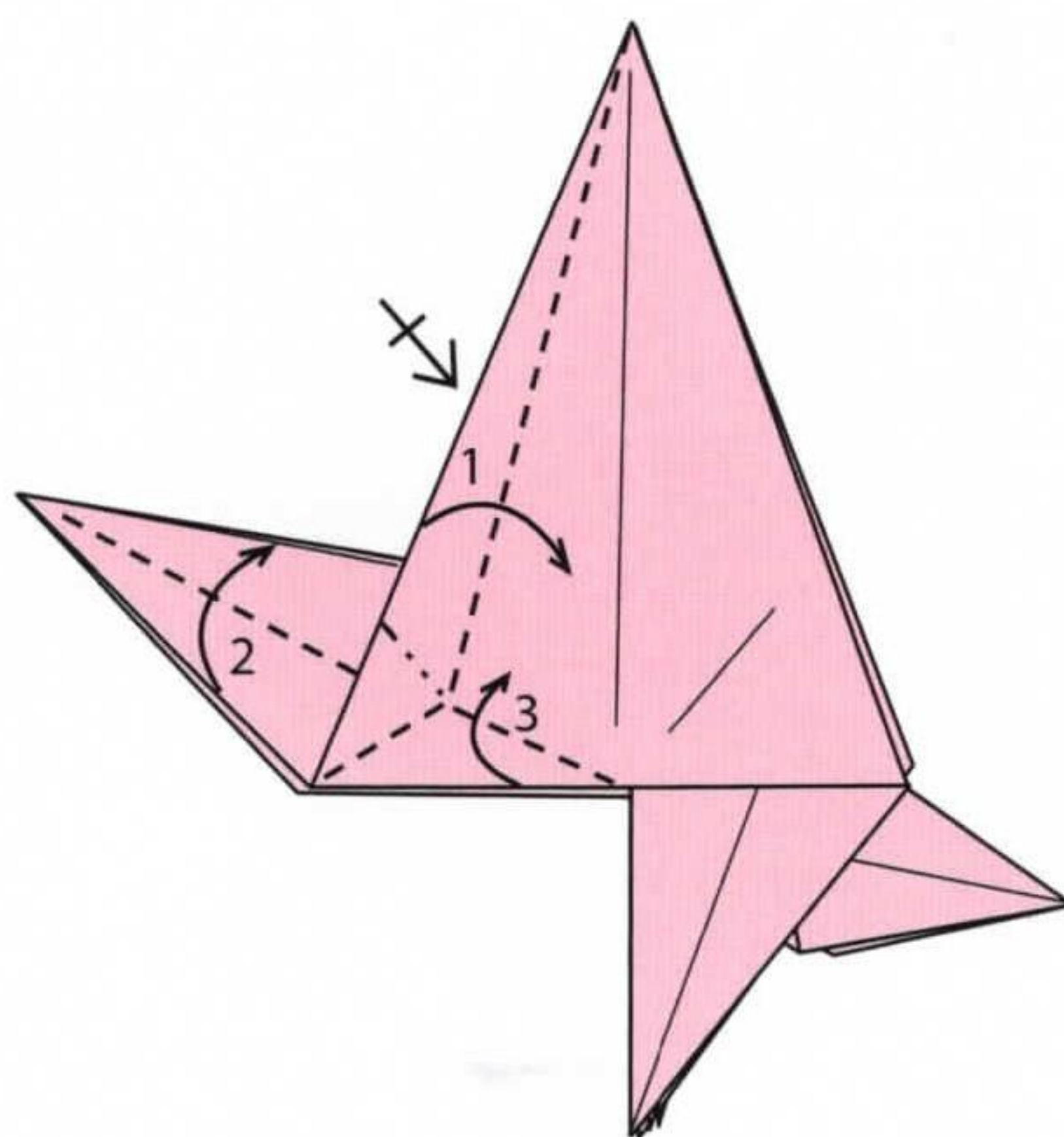
23. Fold the back left layer behind and to the right. Fold the top layer to the left.



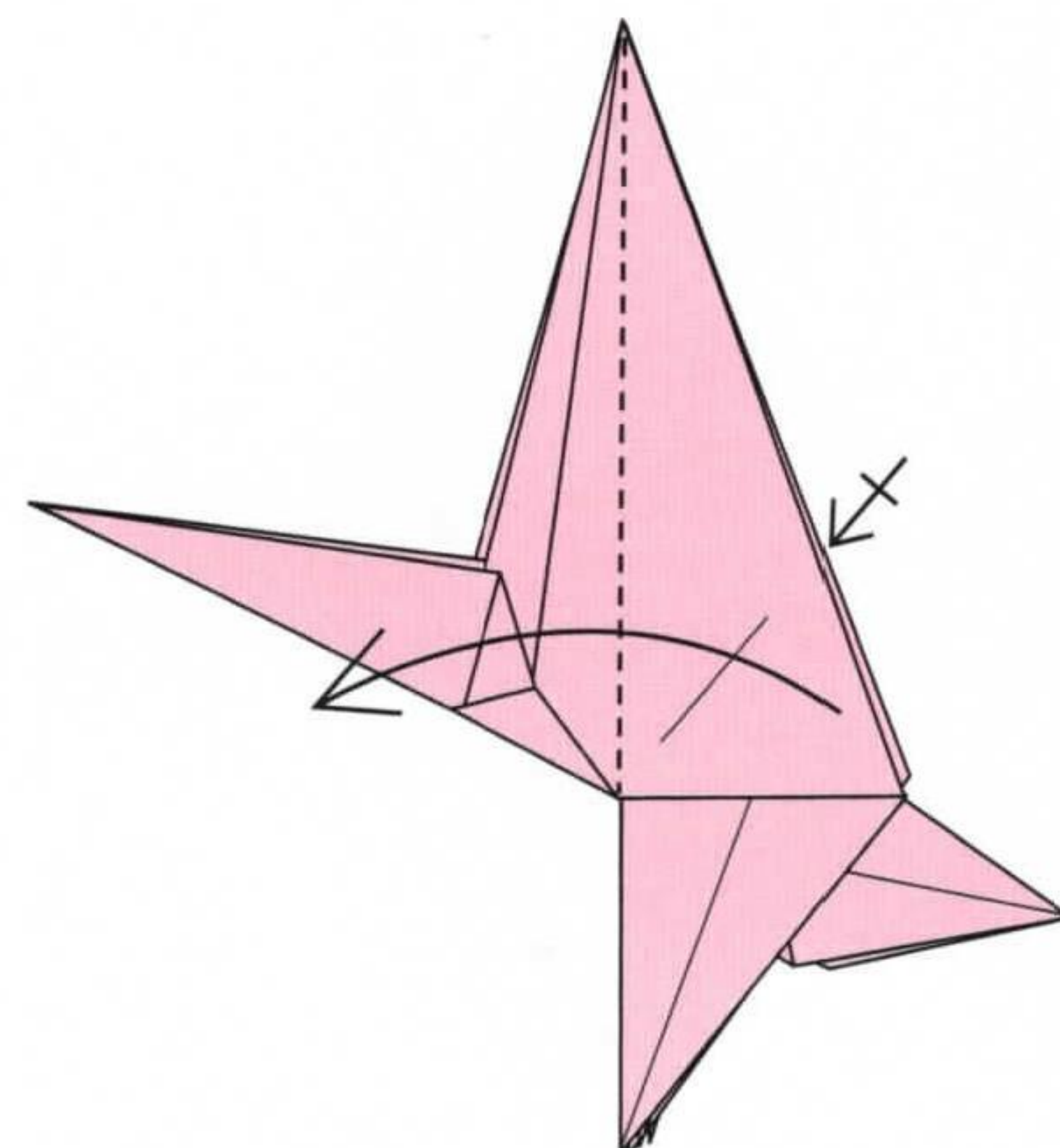
24. You should have two layers on the left. Free the indicated layers by pulling them out, two in the front and two in the back.



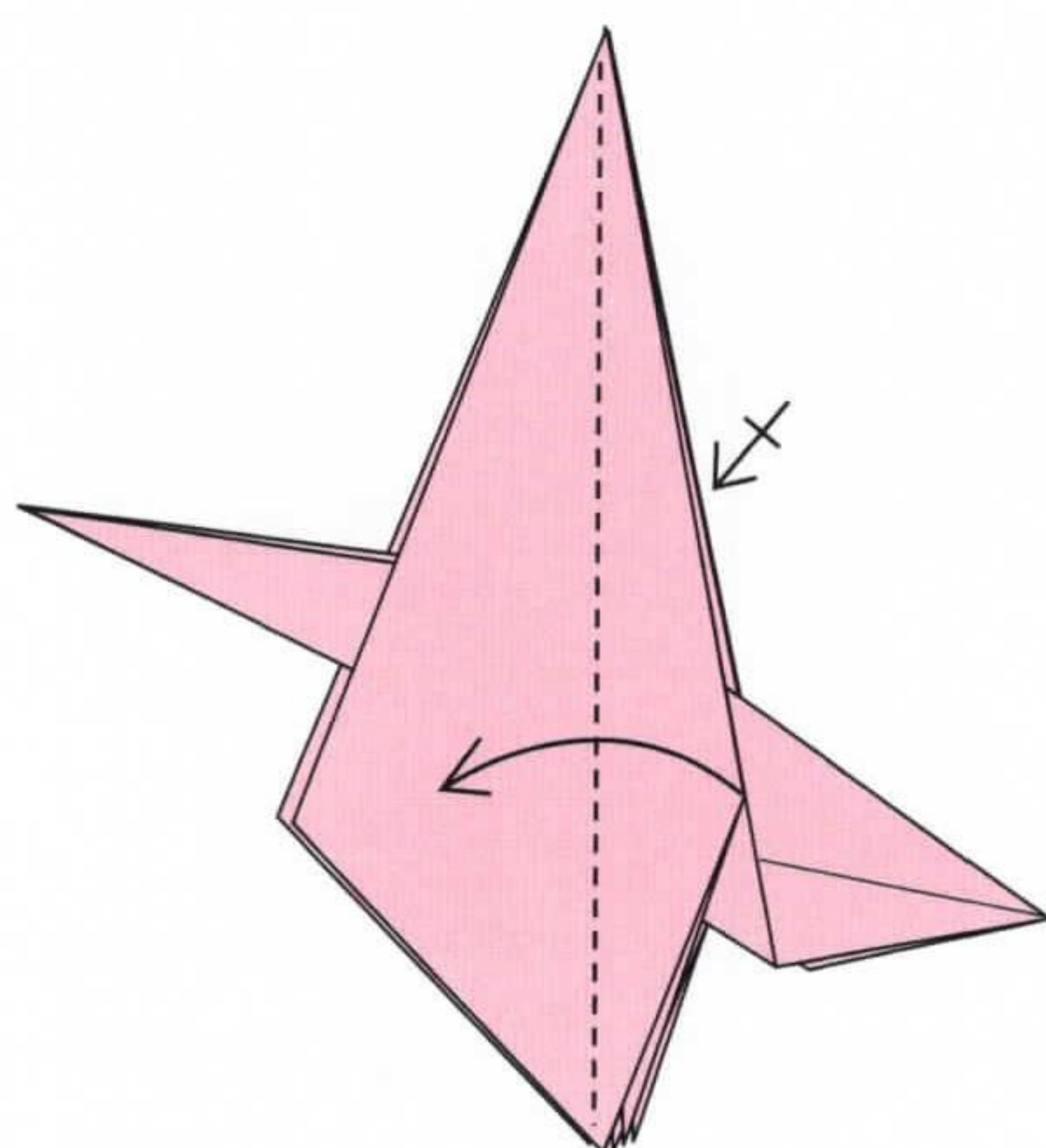
25. Inside-reverse-fold.



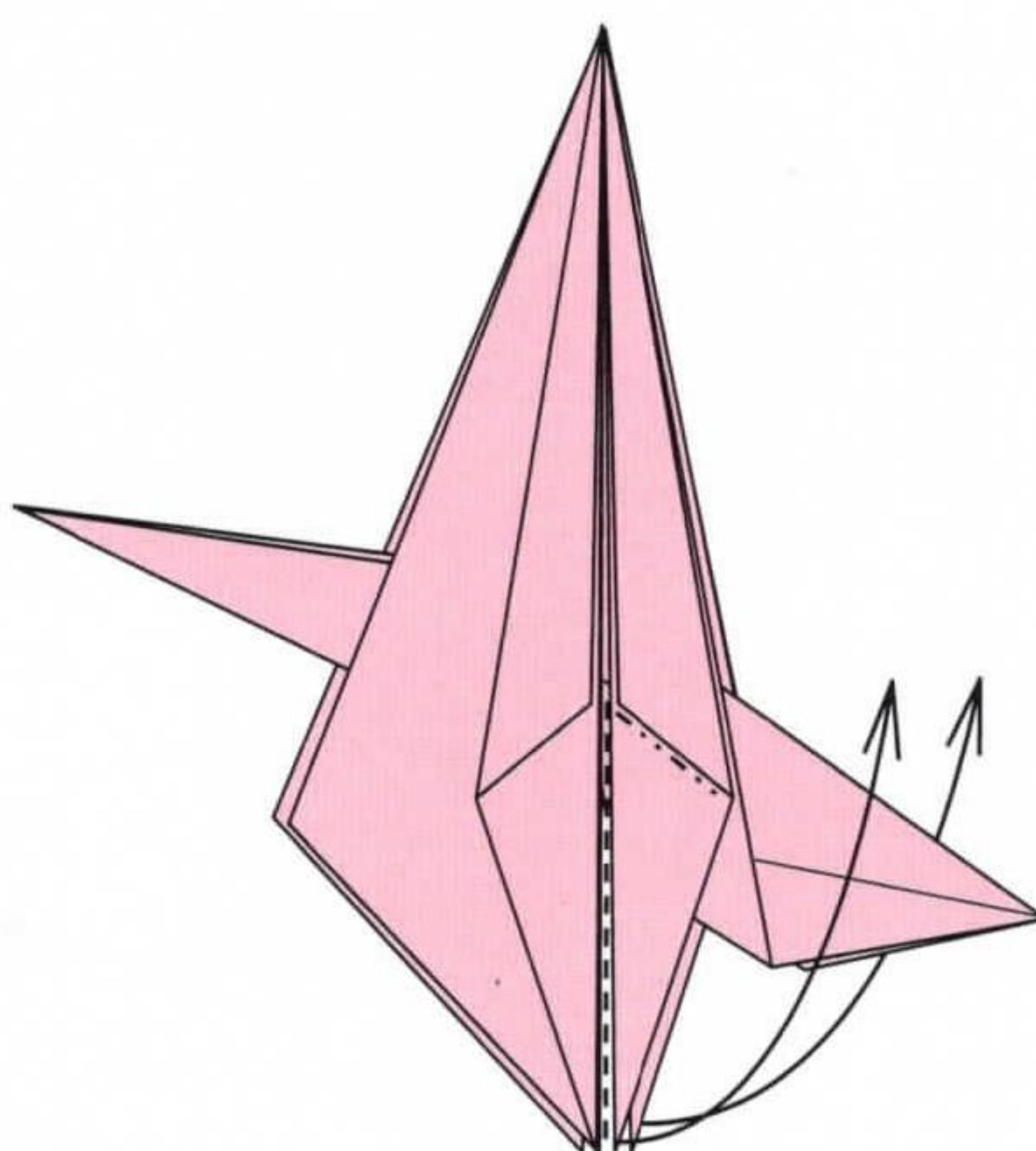
26. Fold in edge number 1, about one-third. Fold up edge number 2, then fold up number 3. Repeat behind.



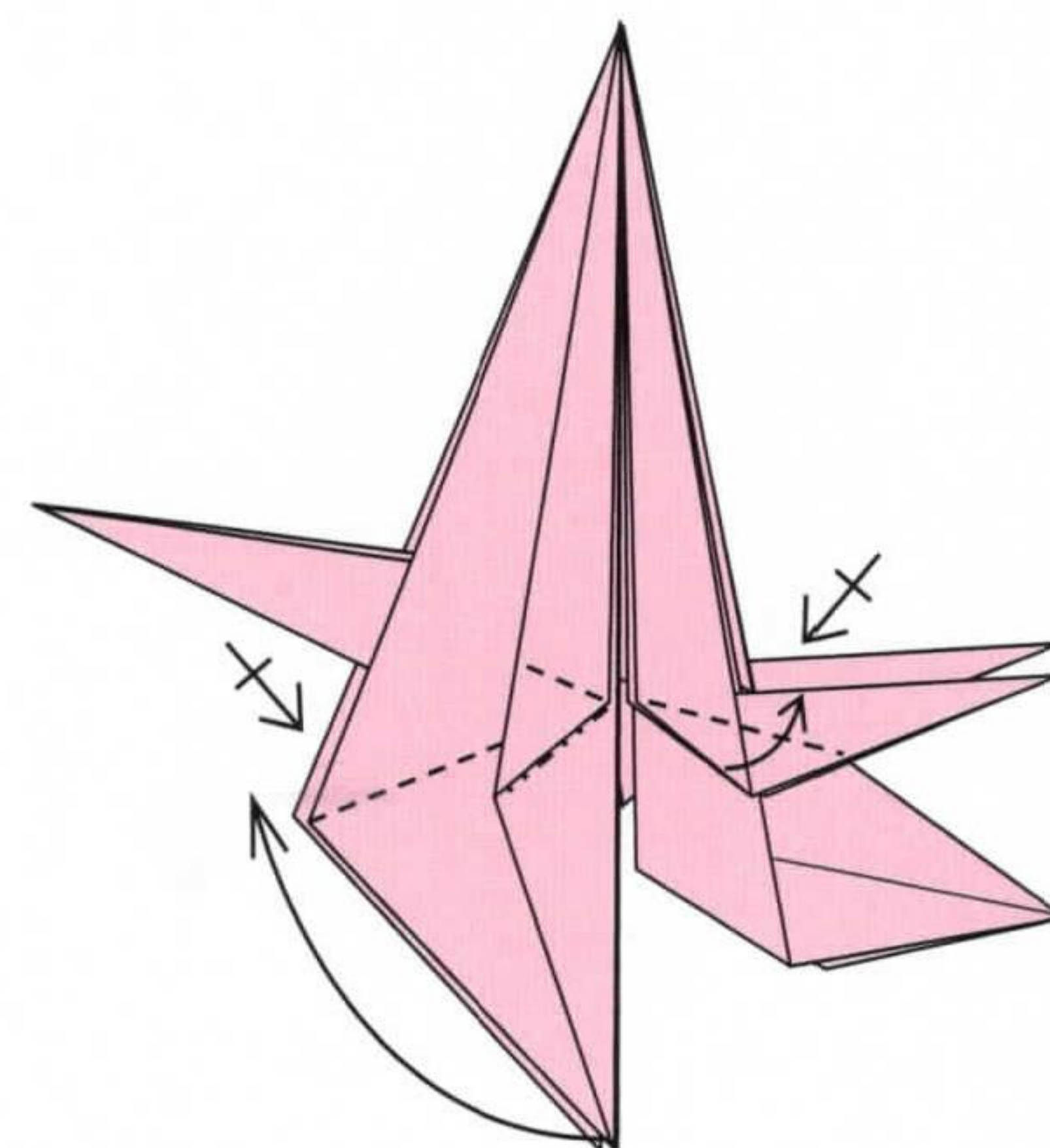
27. Fold the top right layer to the left. Repeat behind.



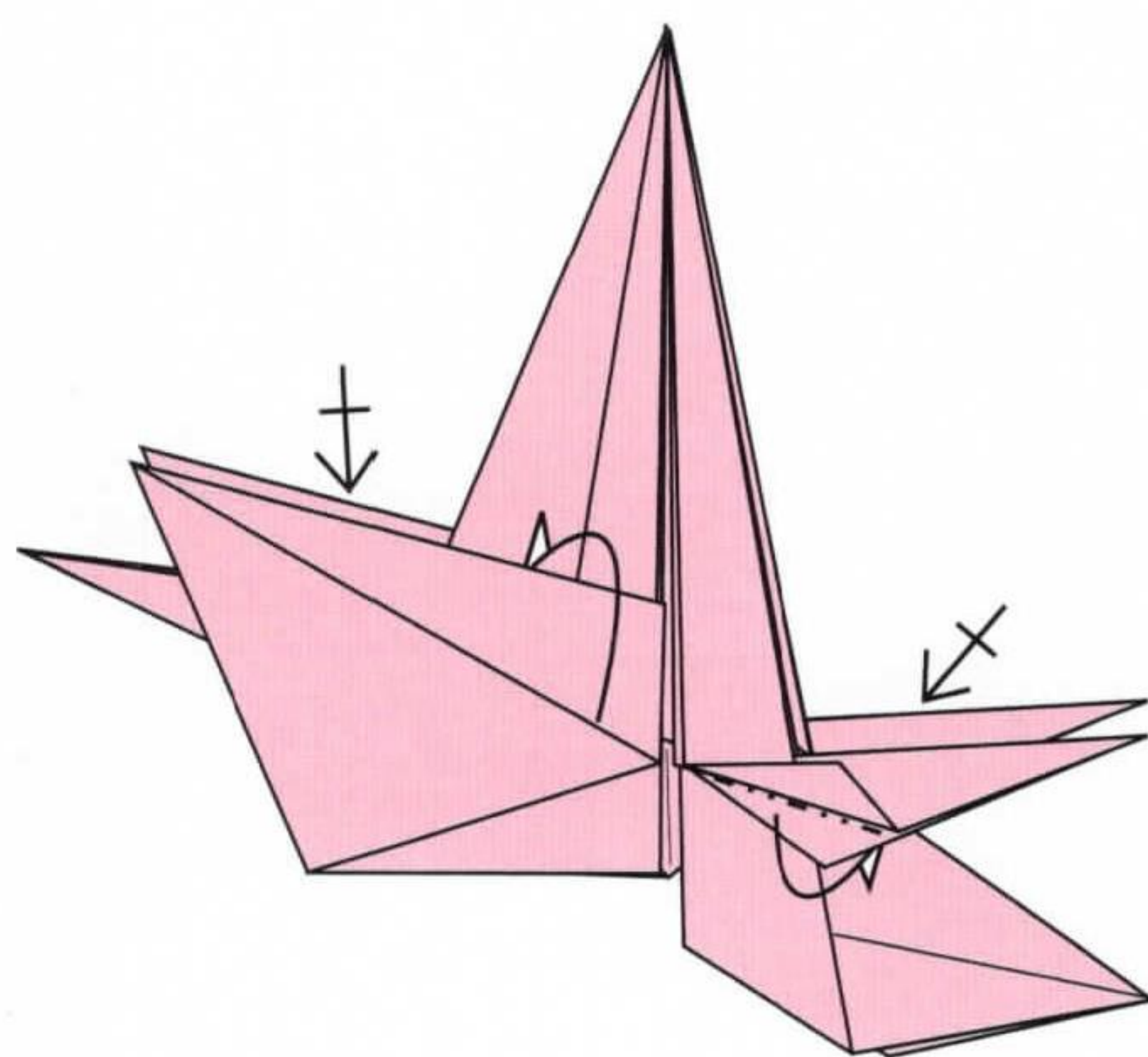
28. Fold the next layer to the left. Repeat behind.



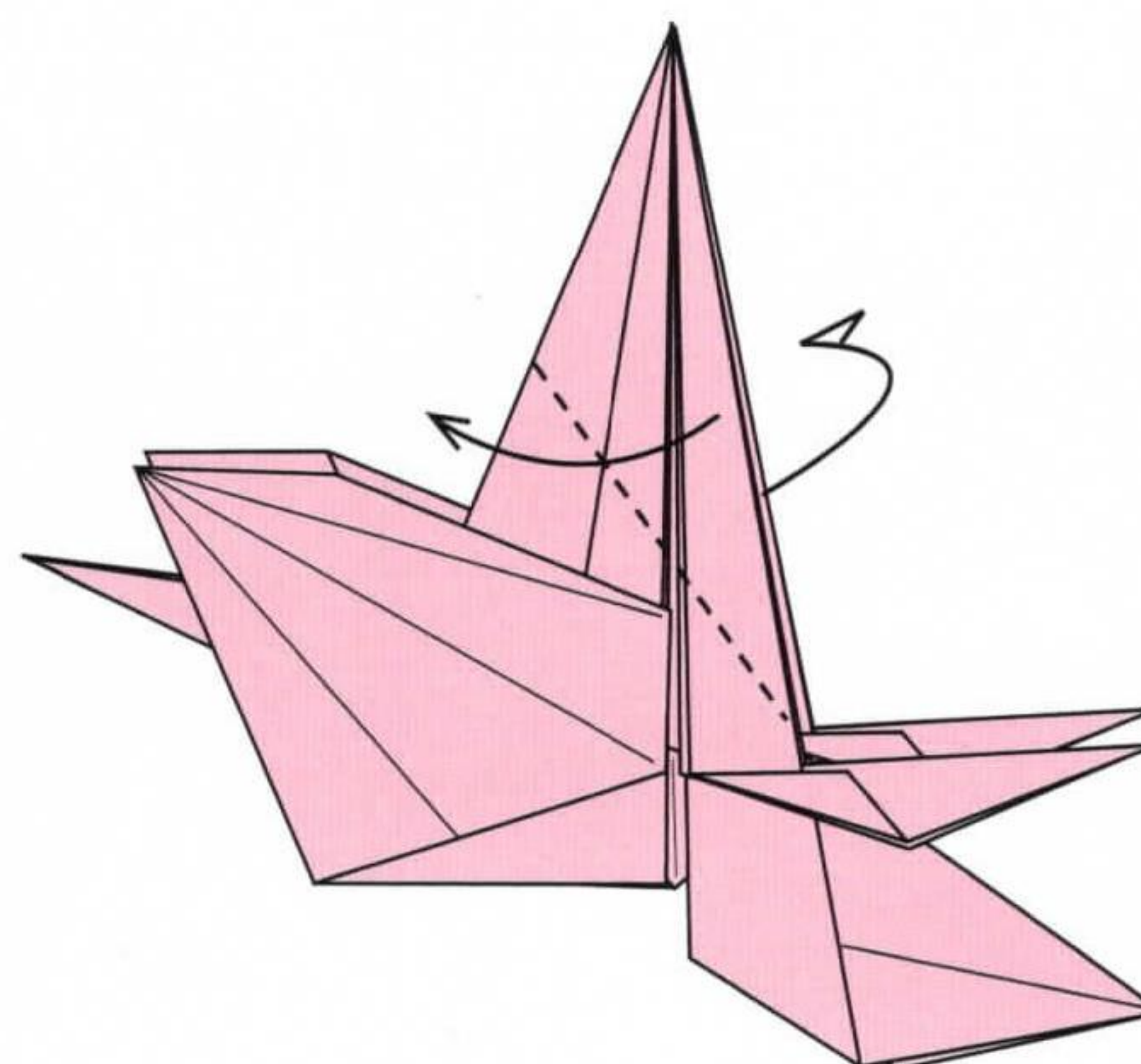
29. Inside-reverse-fold the bottom right points.



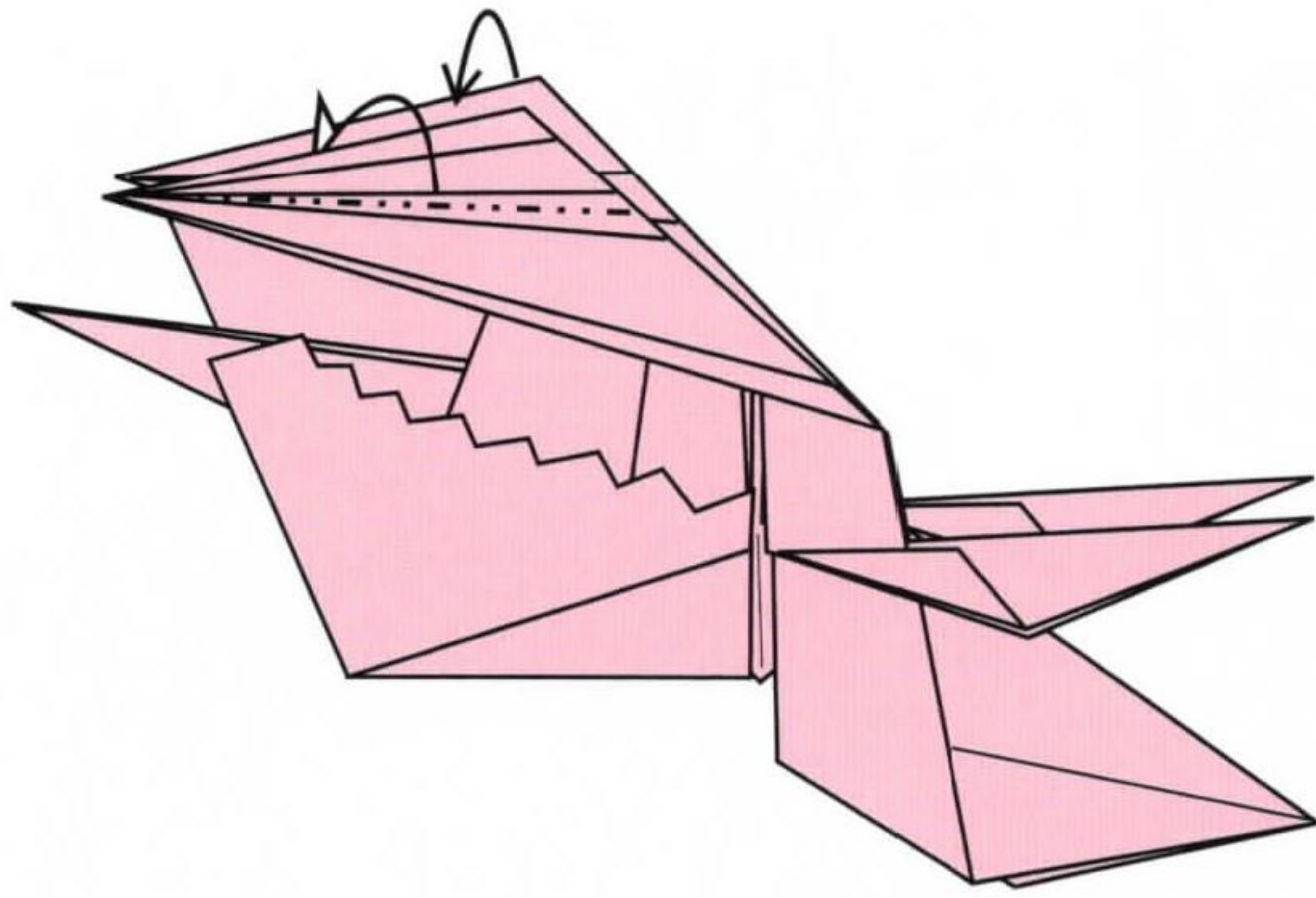
30. Fold the indicated edge of the right point up. Repeat behind. Inside-reverse-fold the bottom left points.



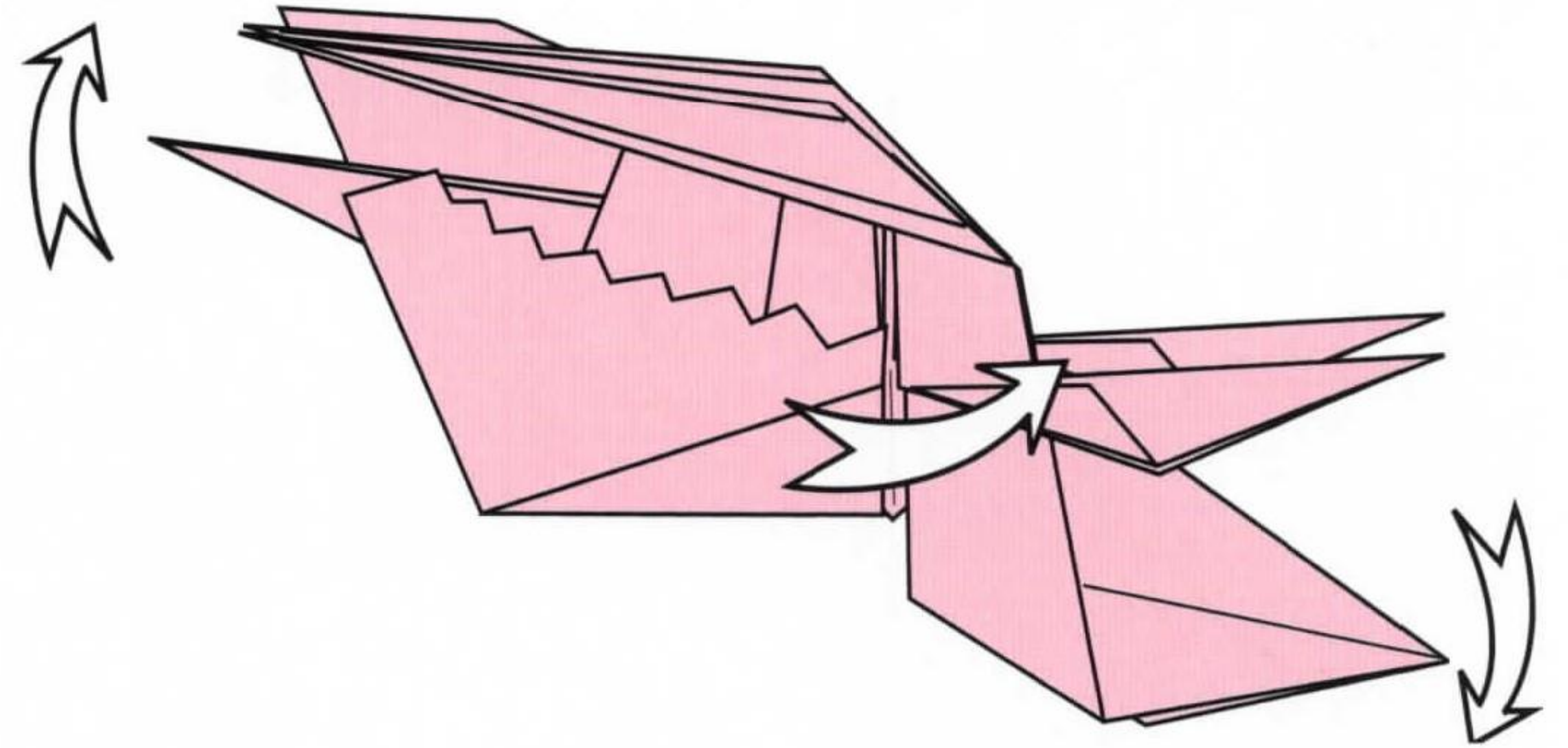
31. Mountain-fold the indicated edge of the right point behind. Repeat behind. Turn the indicated edge of the left point inside out. Repeat behind.



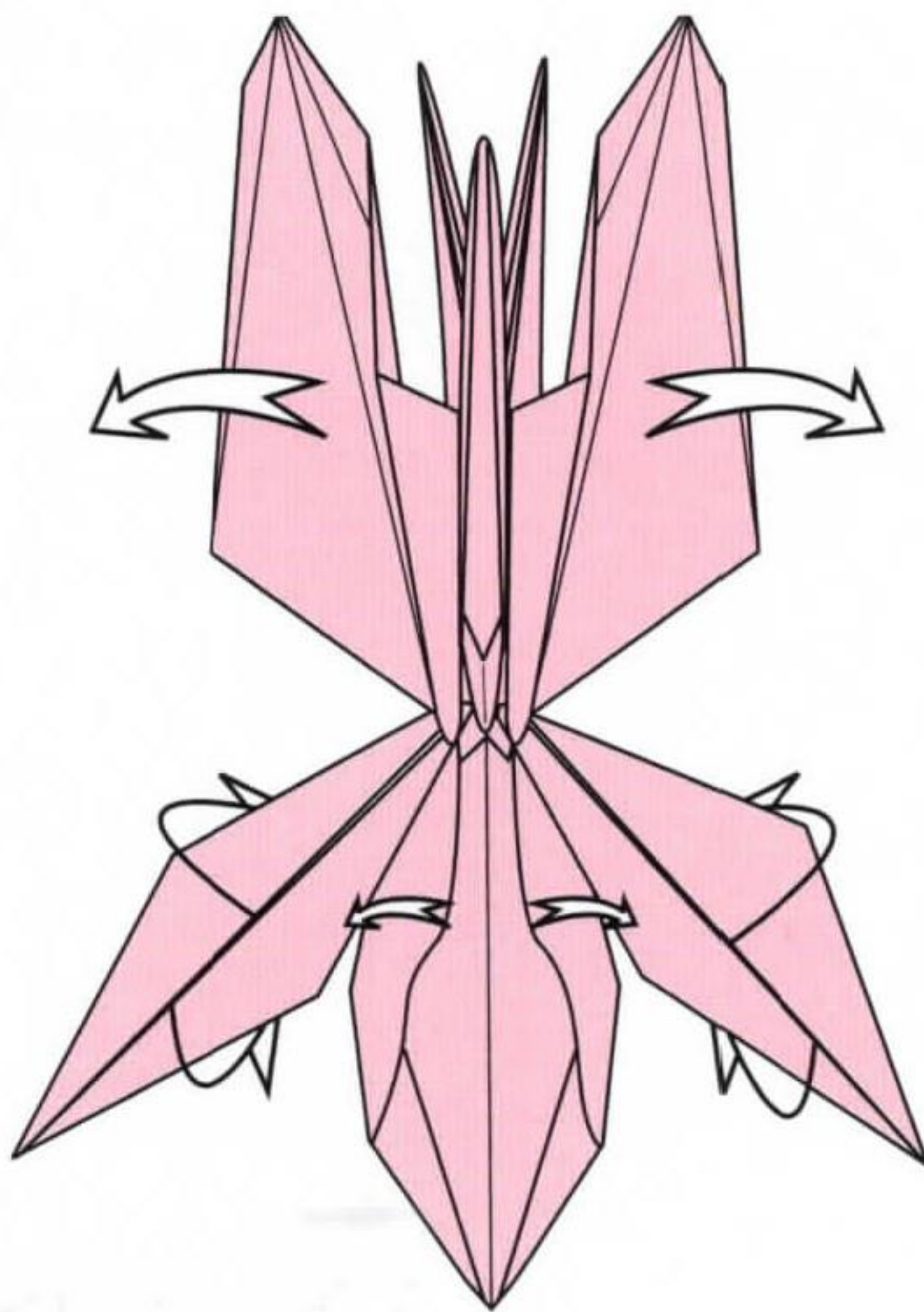
32. Valley-fold the top point to the left. Repeat behind.



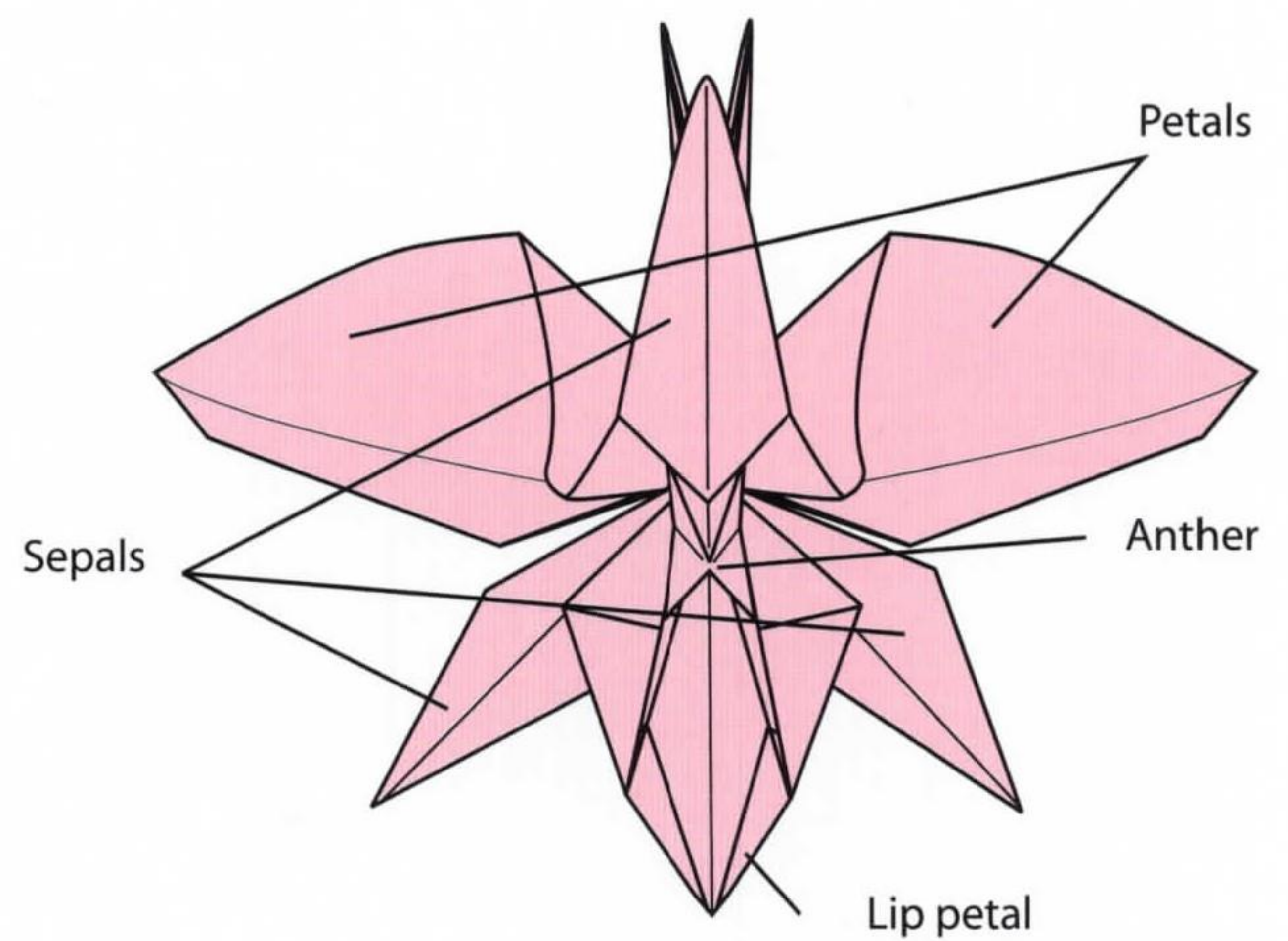
33. Mountain-fold to make the points narrower.



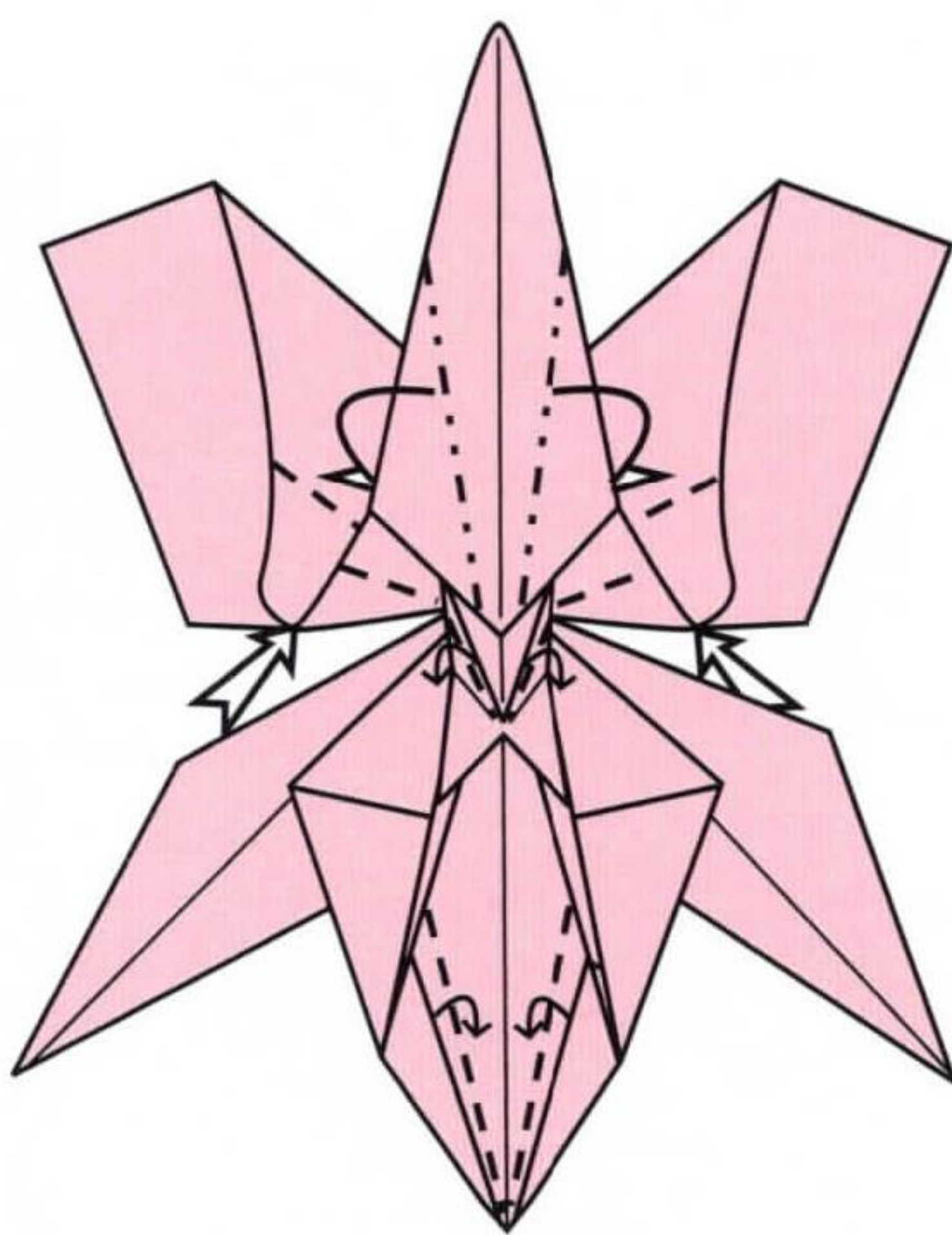
34. Rotate the model to view from the front. Open slightly.



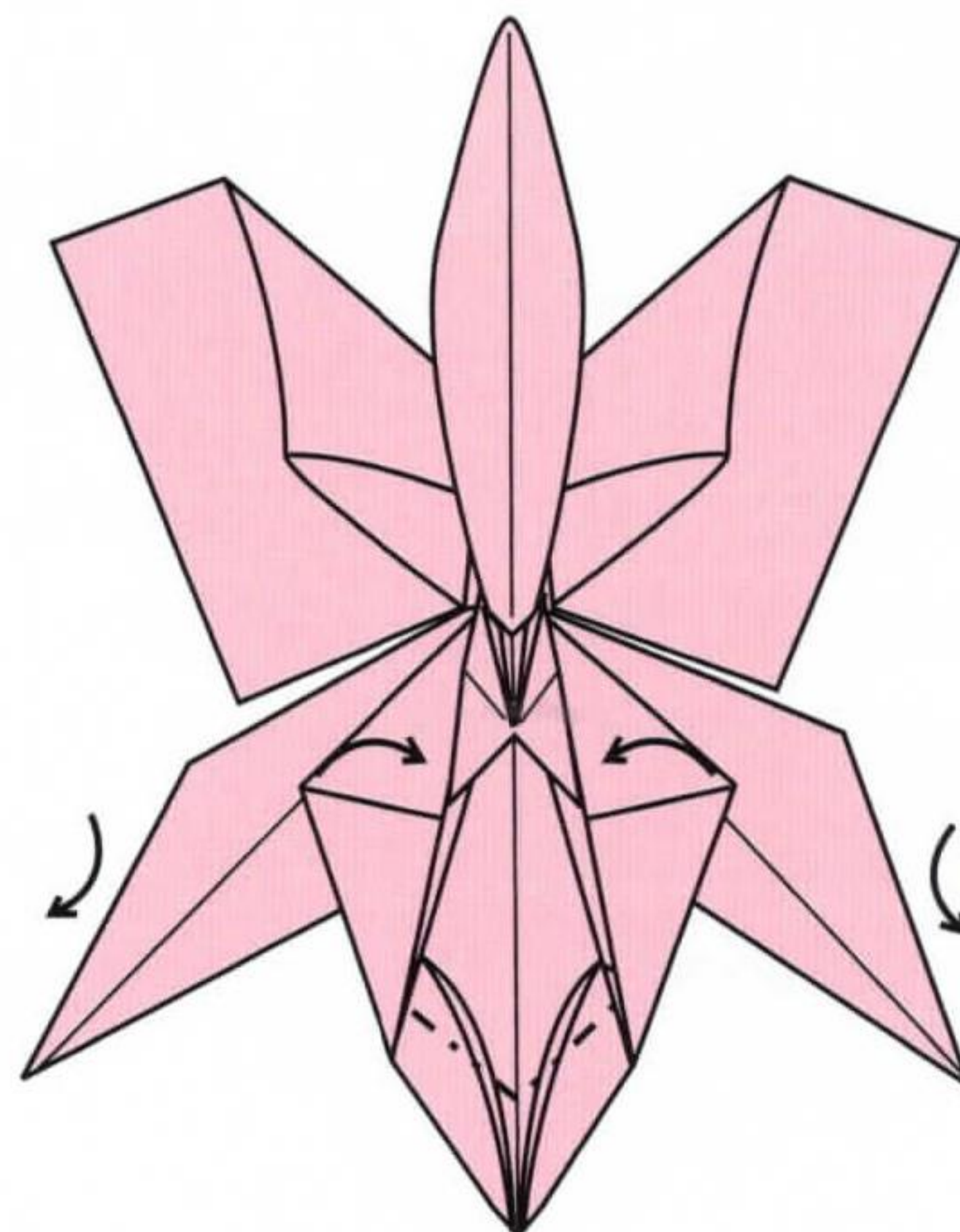
35. Front view. Spread open the upper petals. If desired, turn the top layers of the lower left and lower right petals inside out. Spread open the bottom center petal.



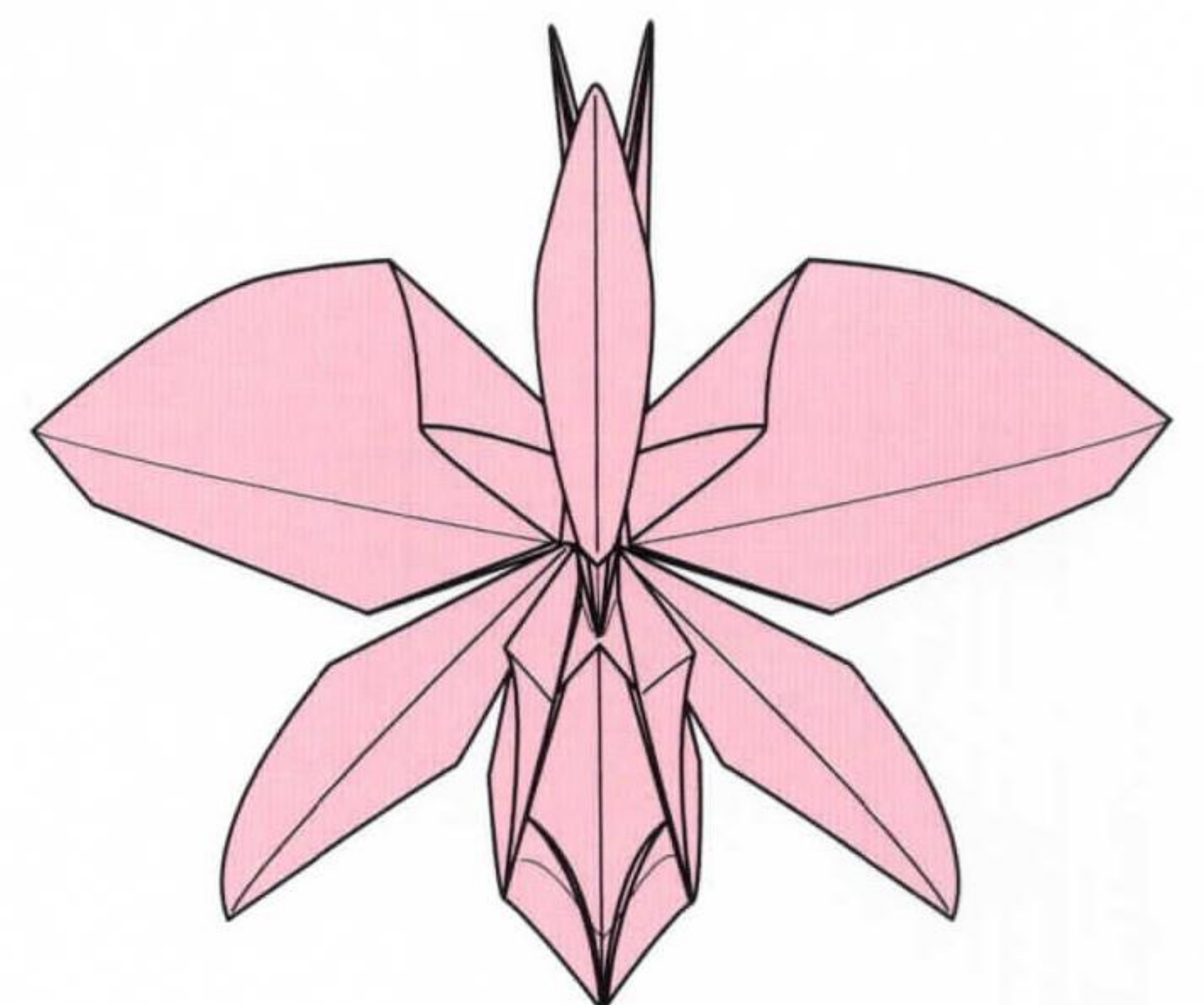
36. This is one of my favorite orchid bases from a 2:1 rectangle, shown opened. Be creative and discover many new "species" of origami orchids from this base. Different papers allow a variety of shaping potential. The following diagrams will lead you through dry-folding one possible shape. Wet-folding or crepe paper instructions continue at step 44.



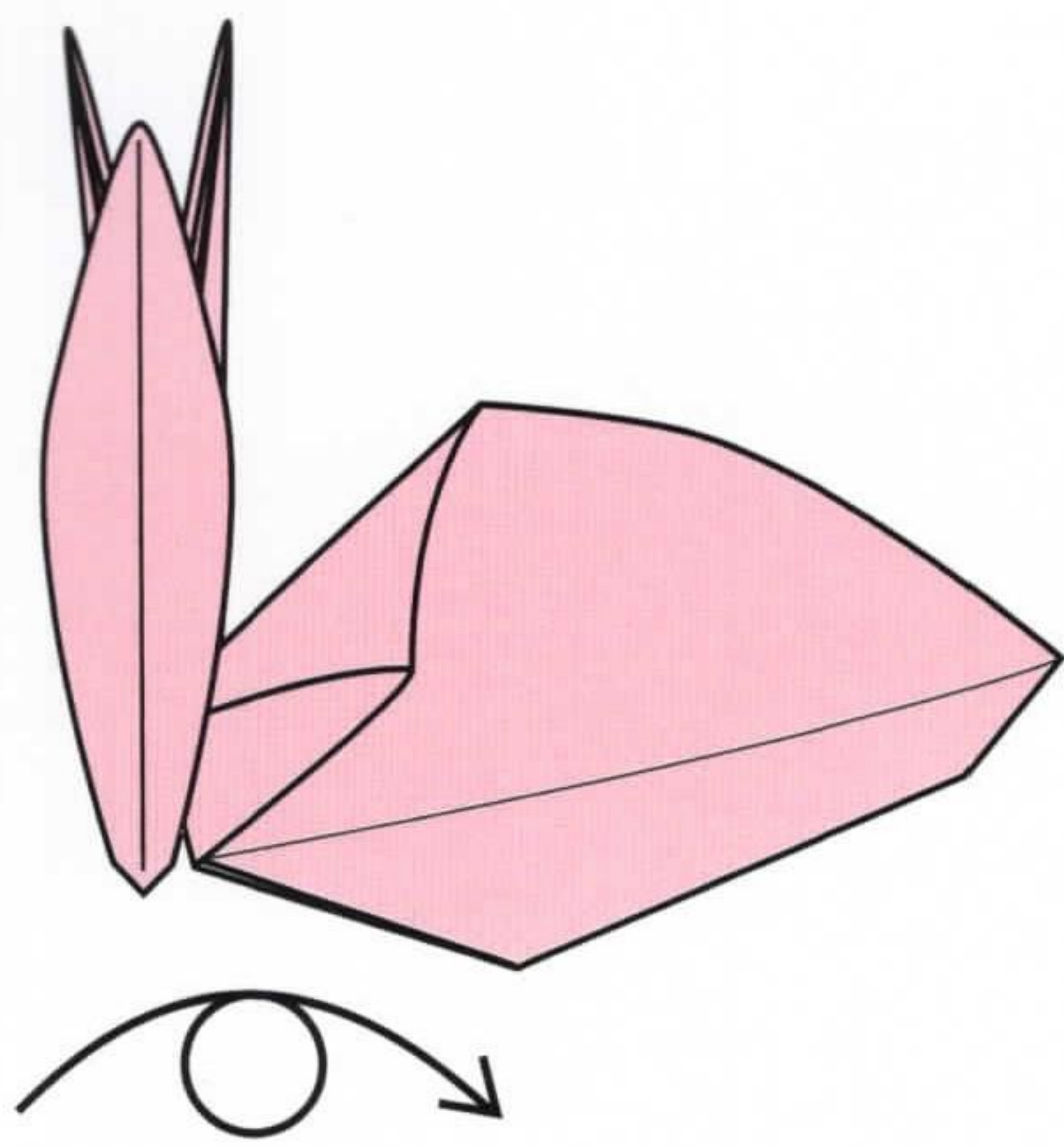
37. Mountain-fold the outer edges of the top sepal while inside-reverse-folding the paper between this and the upper petals. Fold over the top edges of the anther. Fold in the indicated edges within the lip petal.



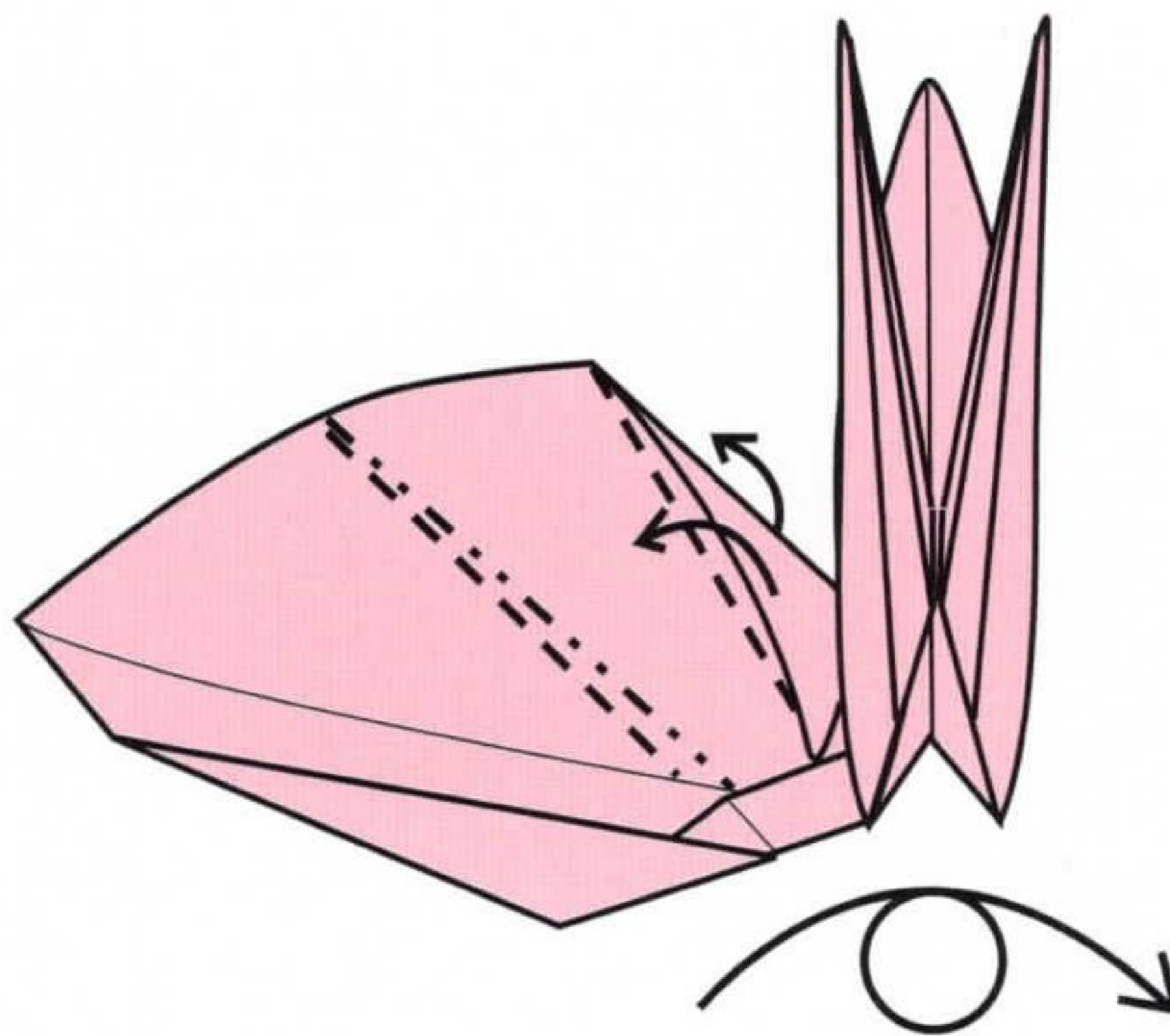
38. Curve the lip petal and lower sepals into a pleasing shape. Feel free to experiment! Mountain-fold down the point of the lip petal.



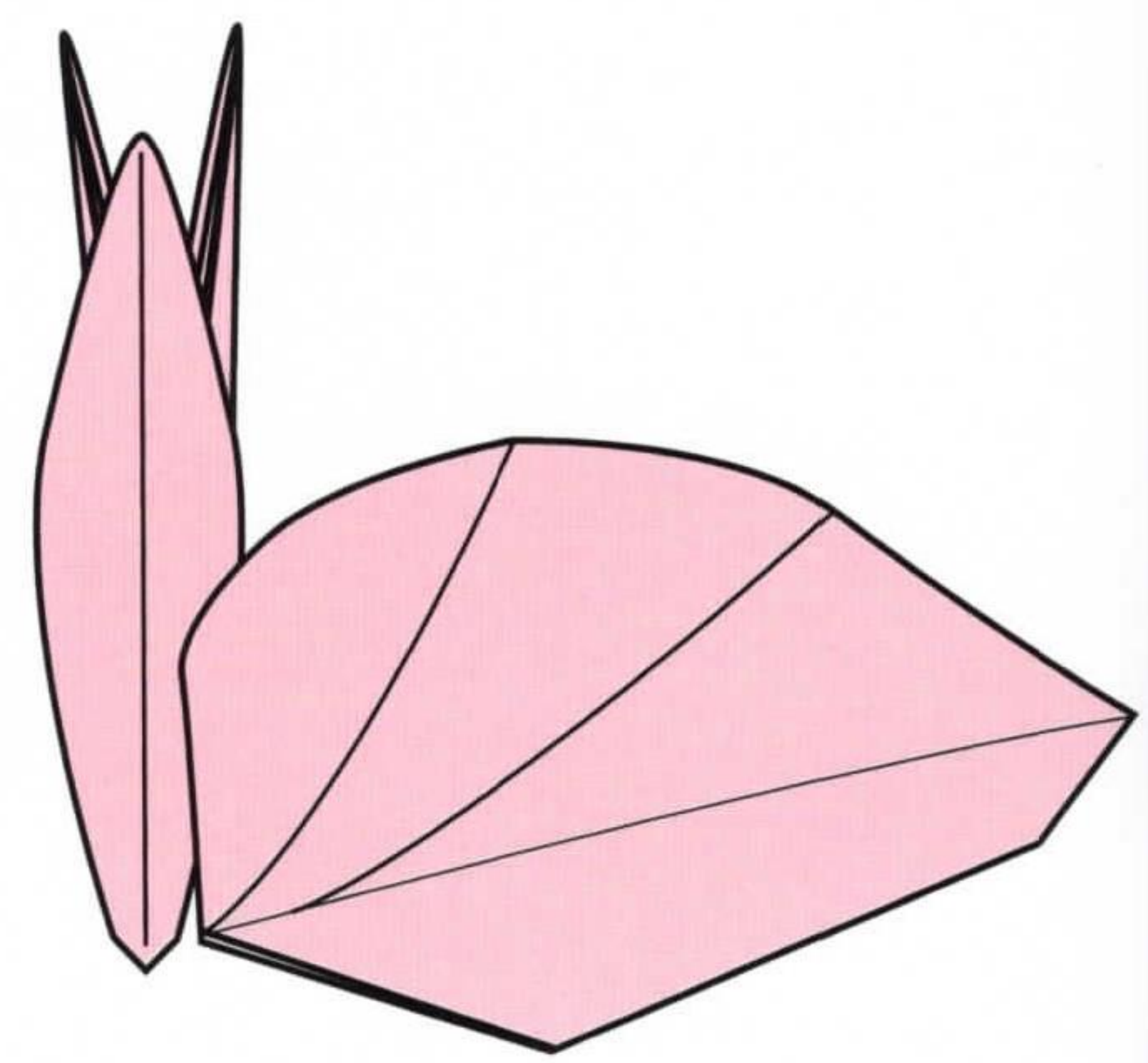
39. Full view.



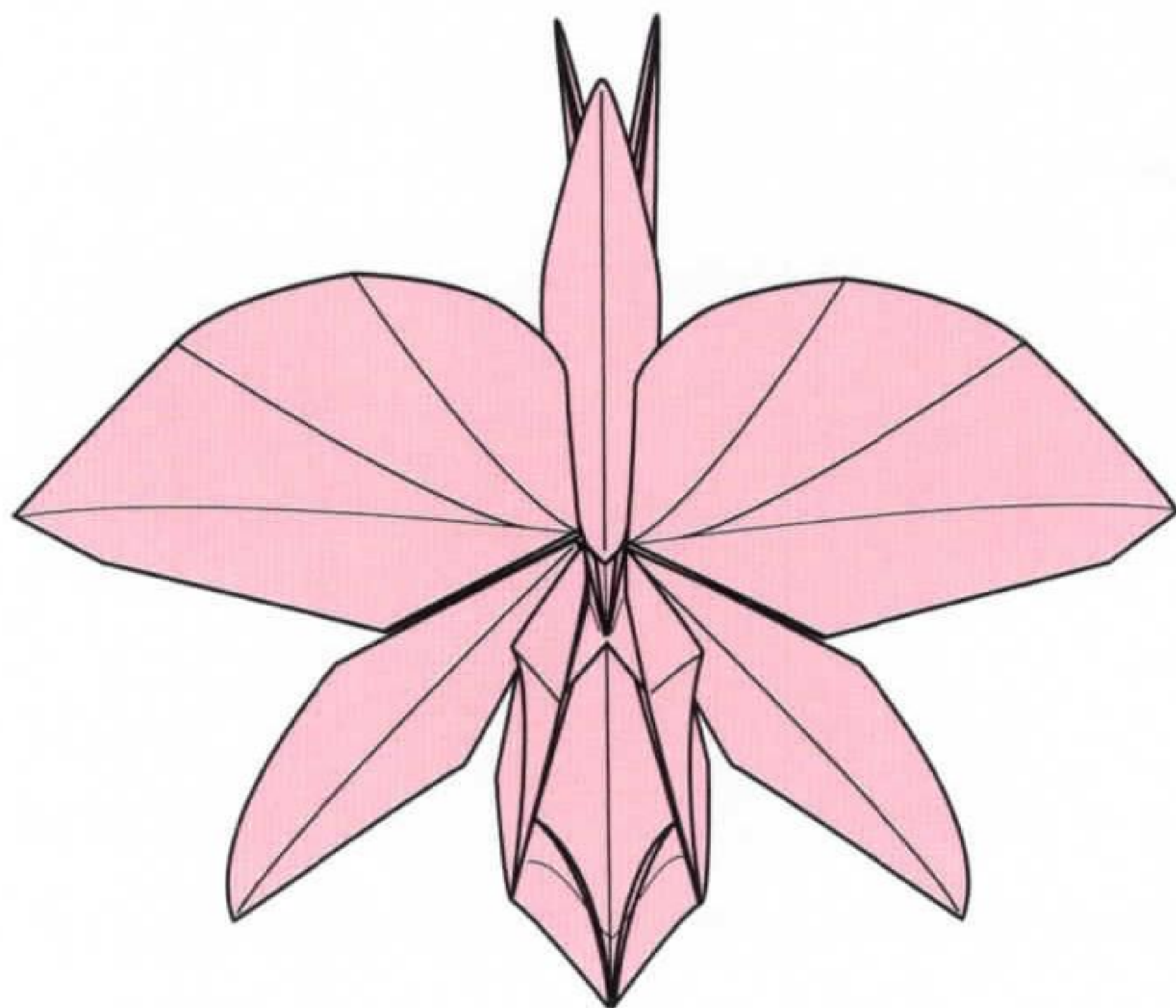
40. Turn over, left to right.



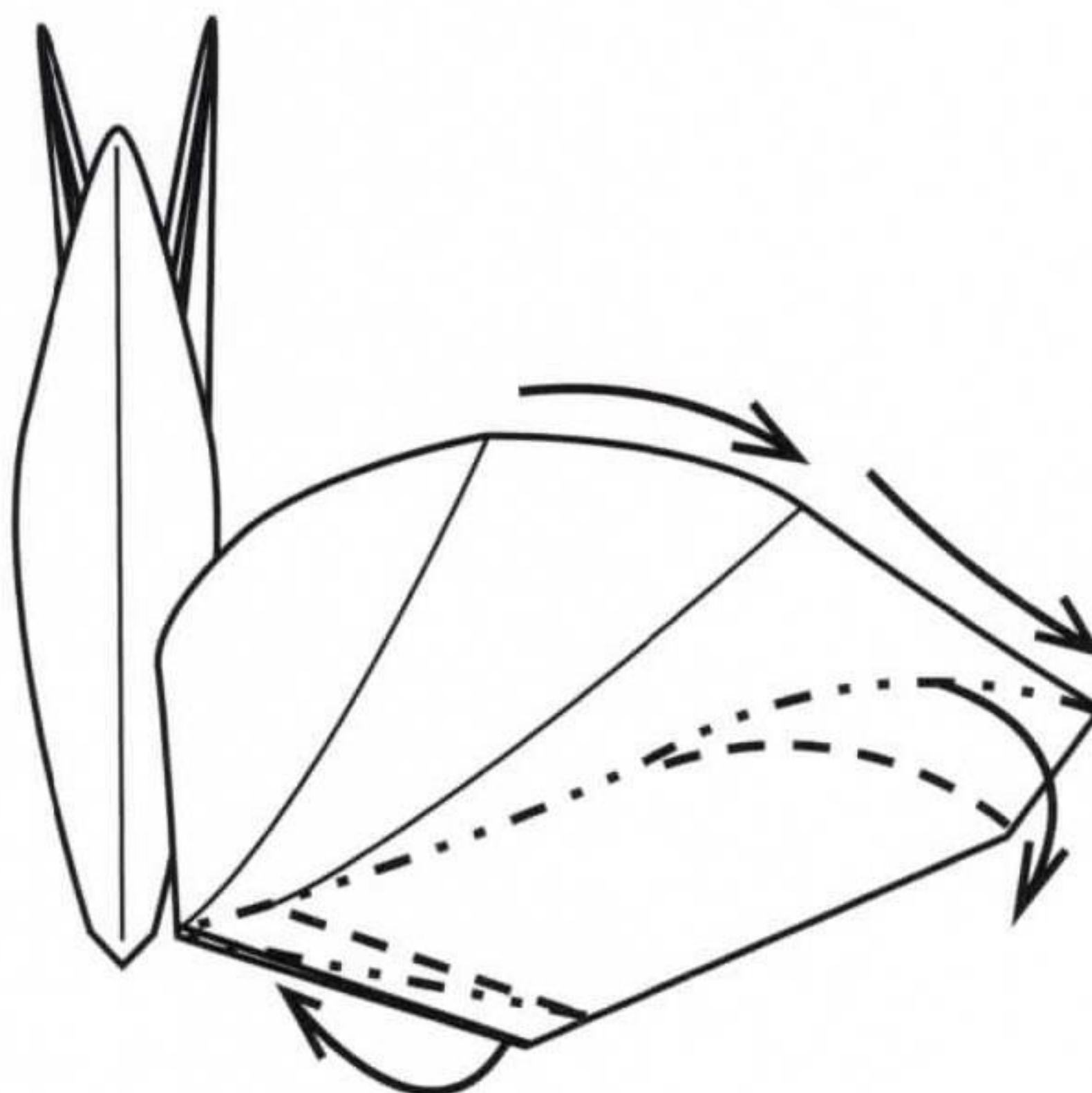
41. Mountain- and valley-fold a pleat at the middle of the back of the upper petals. Valley-fold the inner leading edge to the back side. Turn over, left to right.



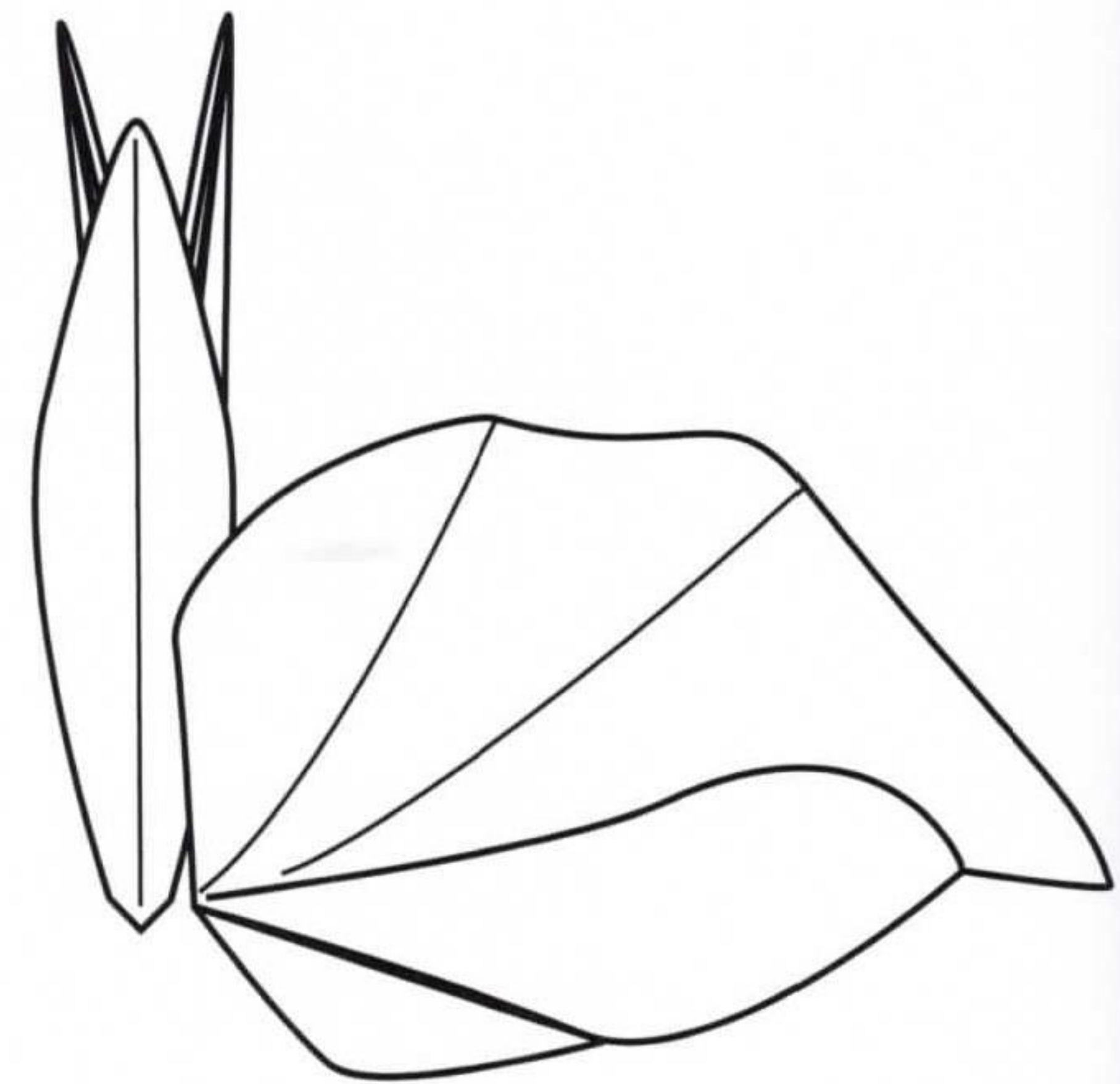
42. Front view of shaped petal. Again, experiment.



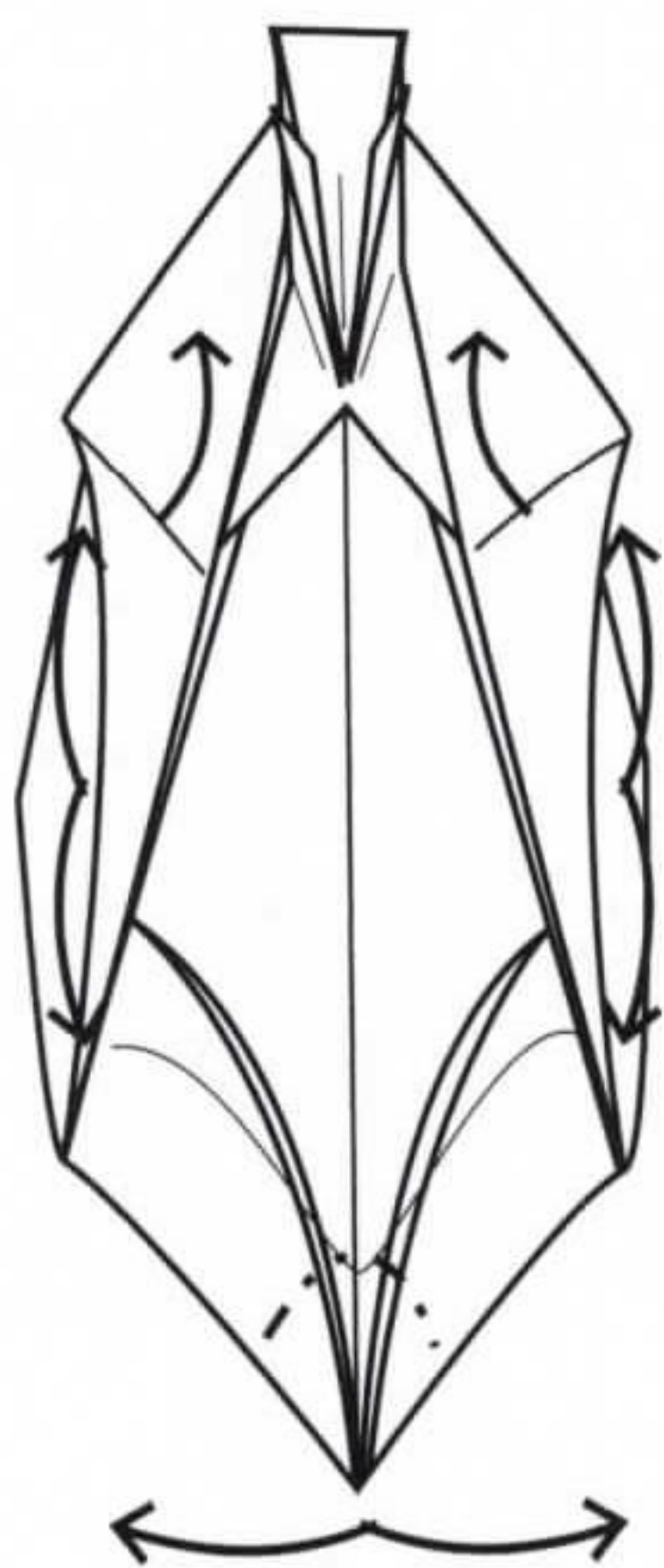
43. The finished Orchid, dry-folded.



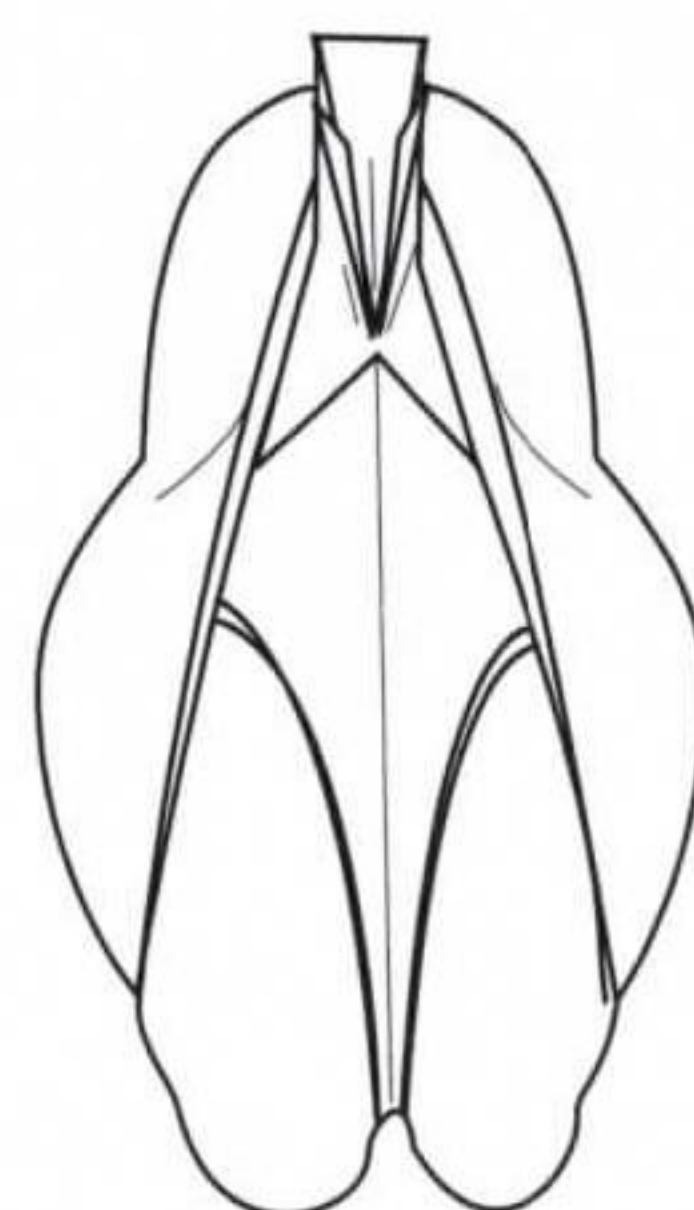
44. When using crepe paper or when wet-folding this orchid, additional shaping is possible. Spectacular lifelike renditions can be made in this way. Crepe paper can be stretched and curled to the extreme. Here, the centerline of the upper side petal is mountain-folded while being stretched in a curved path. This curved mountain edge is then valley-folded downward. The back layer of the bottom edge is brought back to the front and rounded by stretching it.



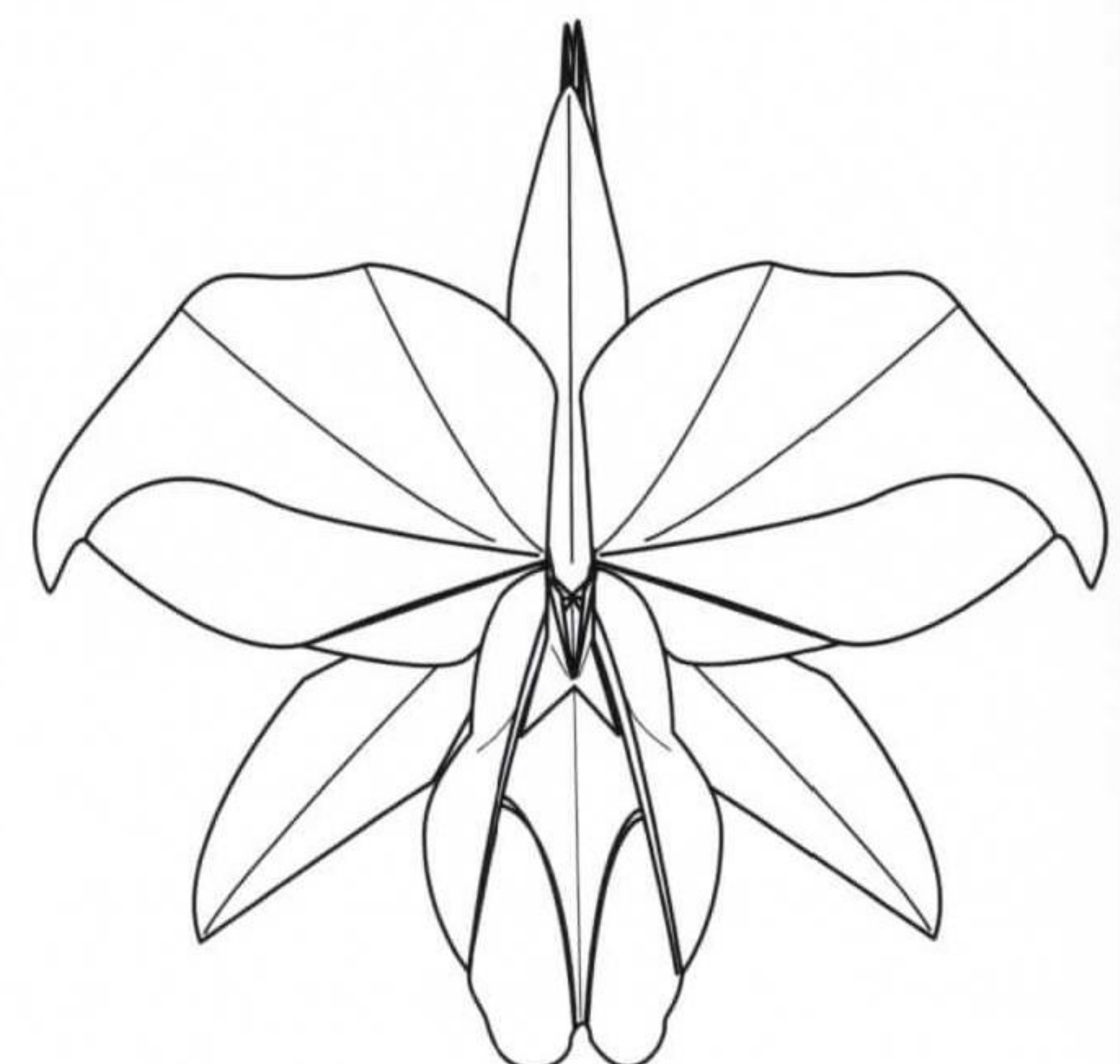
45. The completed shape.



46. The lip petal can be made more shapely by stretching and curling any of its free edges. Stretch and inside-reverse-fold the front end.



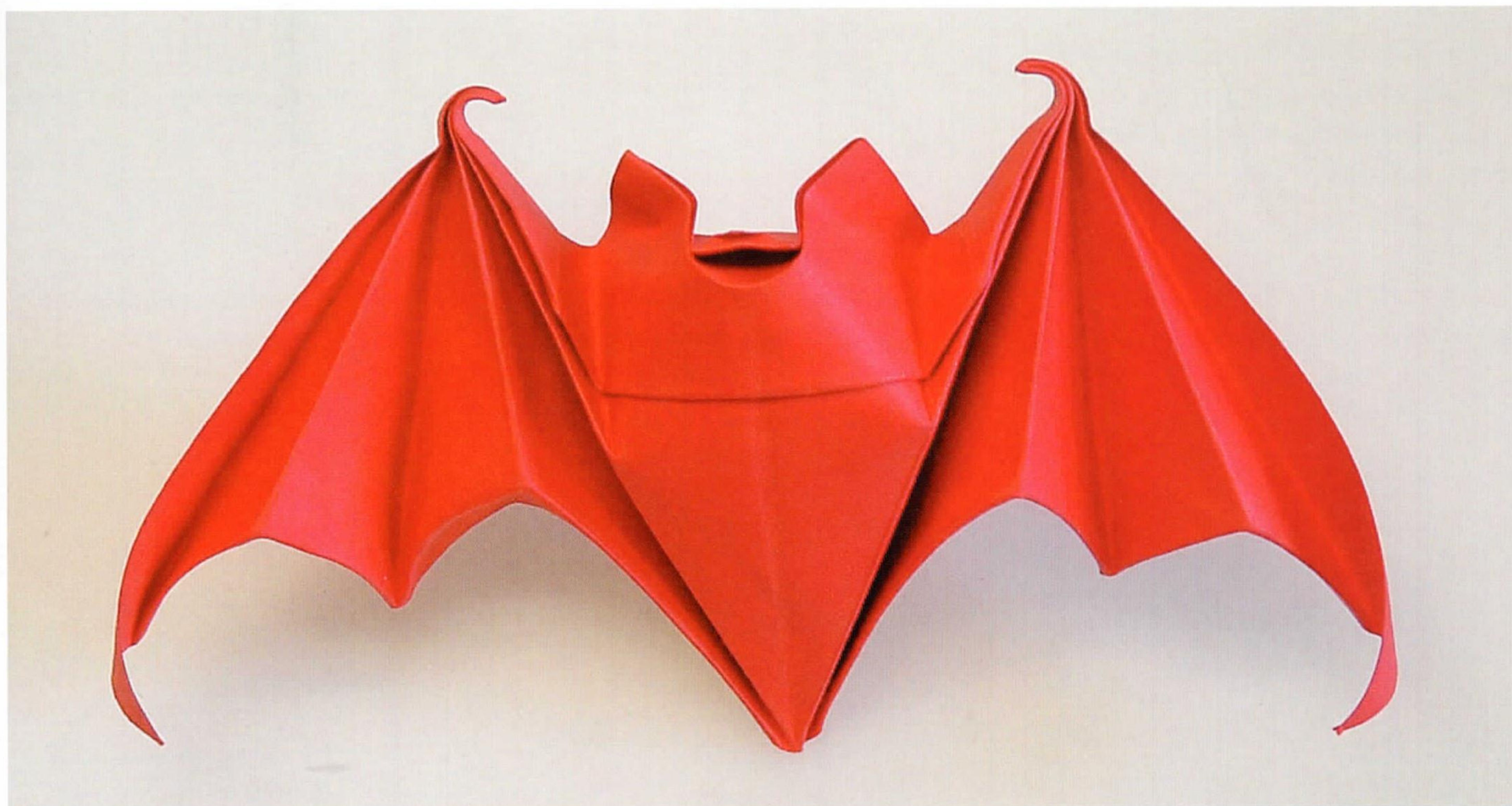
47. The completed shape. Many forms are possible.



48. The finished Cattleya Orchid.

happy good-luck bat

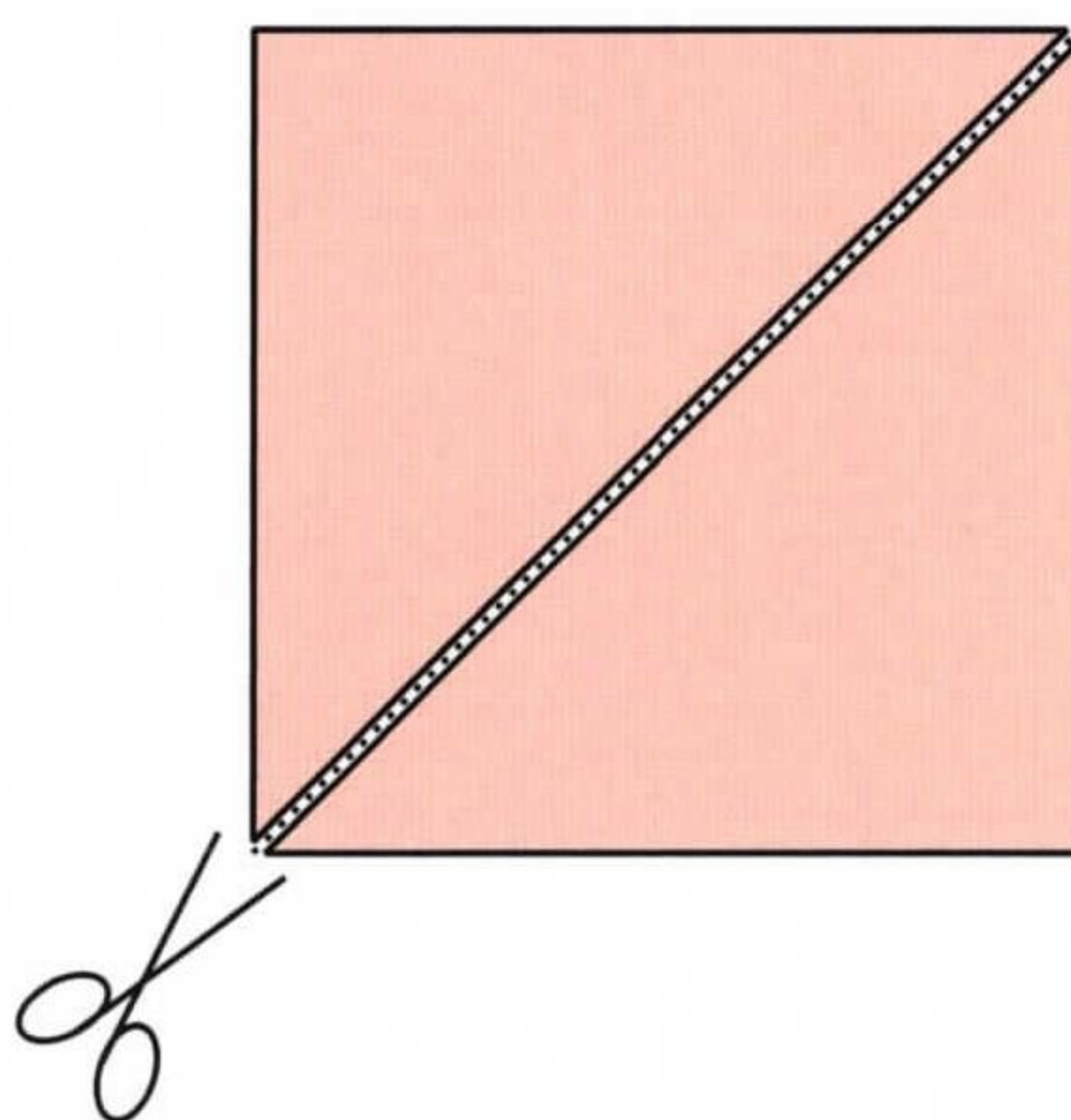
Designed by Michael G. LaFosse



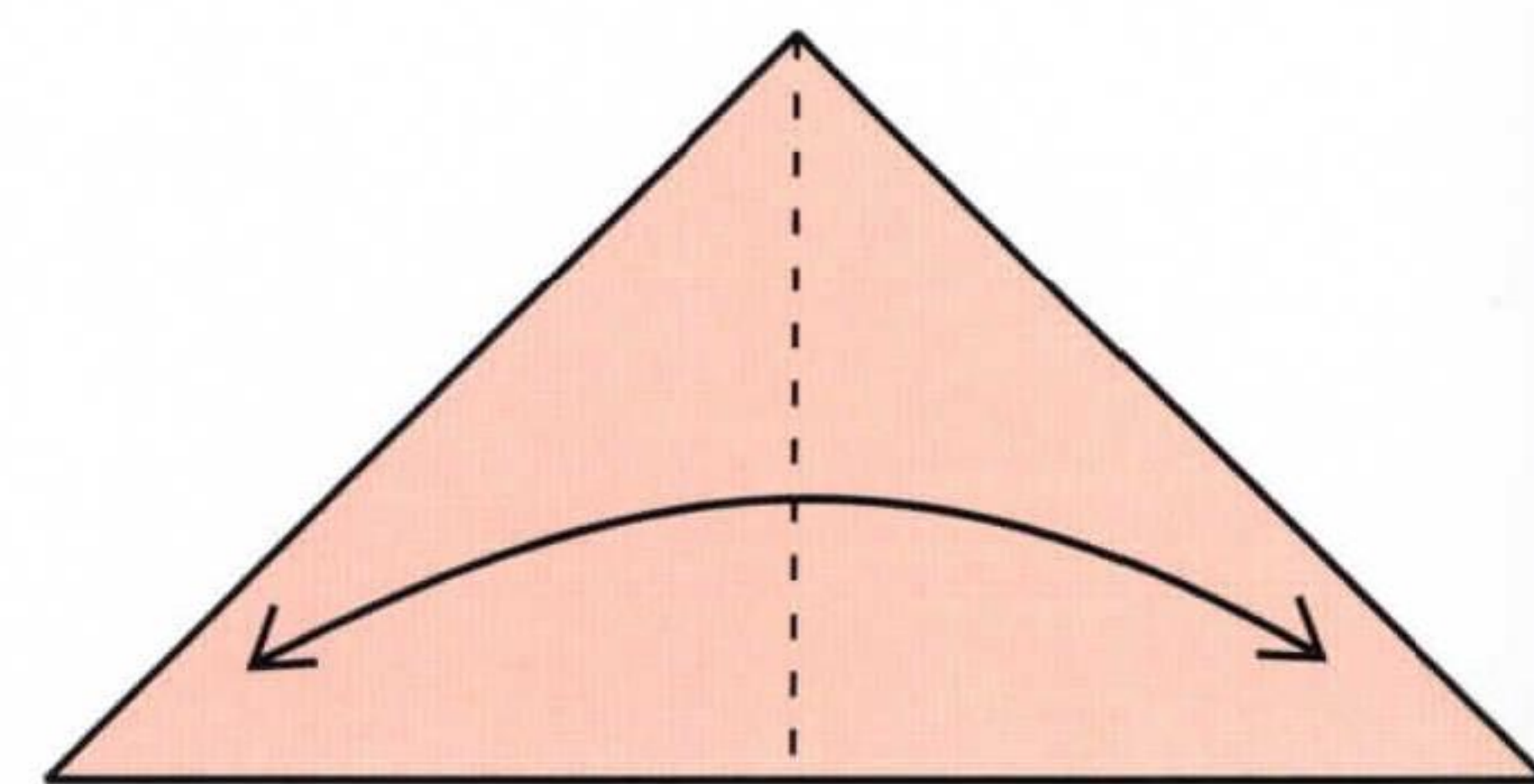
The bat is a splendid creature. Some pollinate our fruit trees and others pollinate important crops. They produce copious amounts of fertilizer. They keep insect populations in check. They provided the clues to discover sonar and radar. And they are cute! Many mammals only dream of flying. Bats actually get the job done. This highly stylized bat was inspired by traditional Chinese decorative arts in which similar simplified shapes grace pottery, textiles, paintings and carvings. The Chinese words for bat and good fortune both sound alike (fu). In China, five red bats are a traditional good luck symbol: five is a lucky number, red is a lucky color and the bat is a symbol of good fortune. With only a few folds, this bat makes an excellent beginner's wet-folding project. Leave the wings closed to make roosting bats, and then display some of them upside down, huddled in the top corner of a shadow box frame.

PAPER SUGGESTIONS

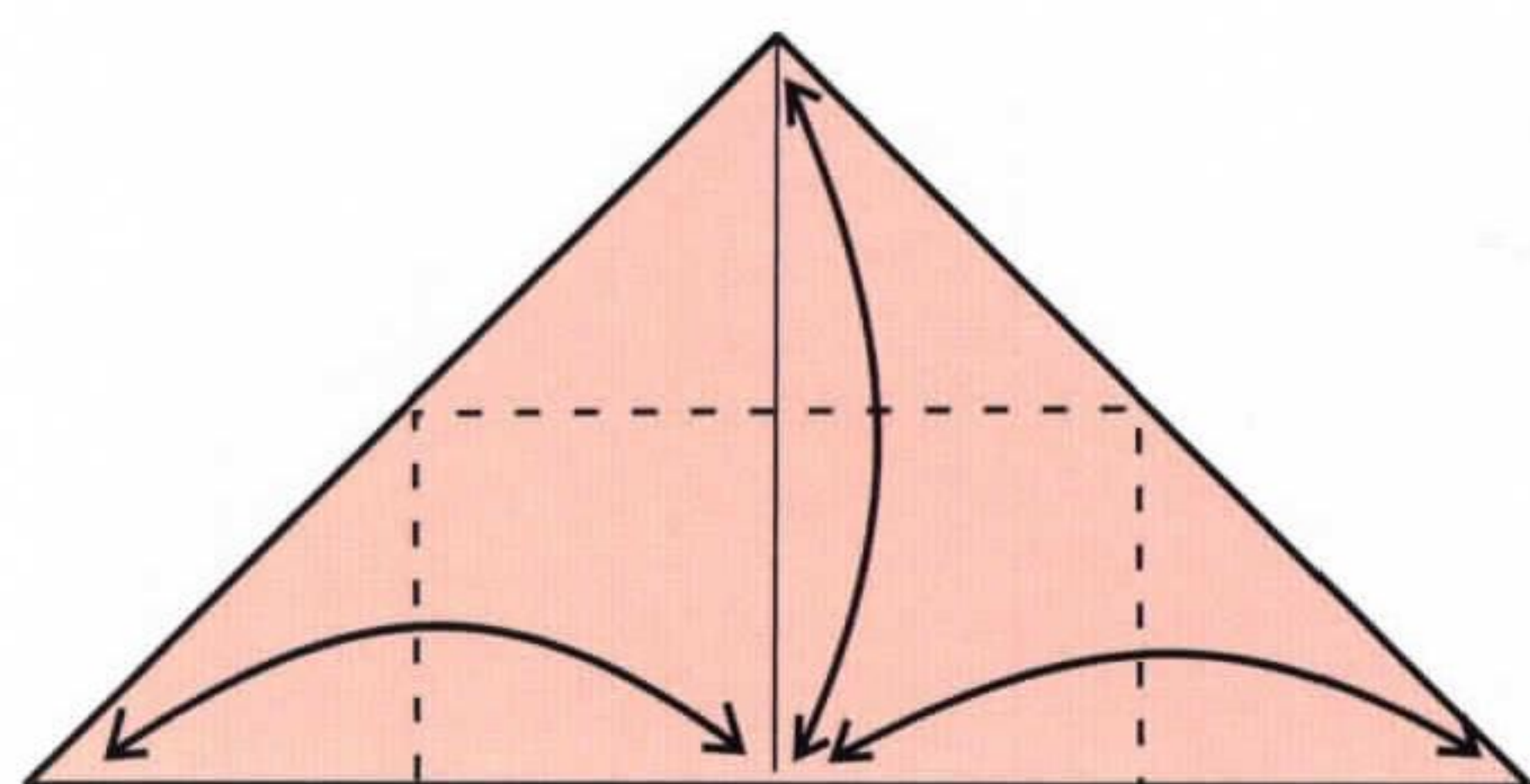
Use a heavier, stiffer paper. It should feel as supple as glove leather when moistened. For economy's sake, cut the square along the diagonal and begin with a triangle. A 6-inch (15-cm) square will produce two Happy Good-Luck Bats with 5-inch (12.7-cm) wing-spans. This model may be dry-folded from tissue foil.



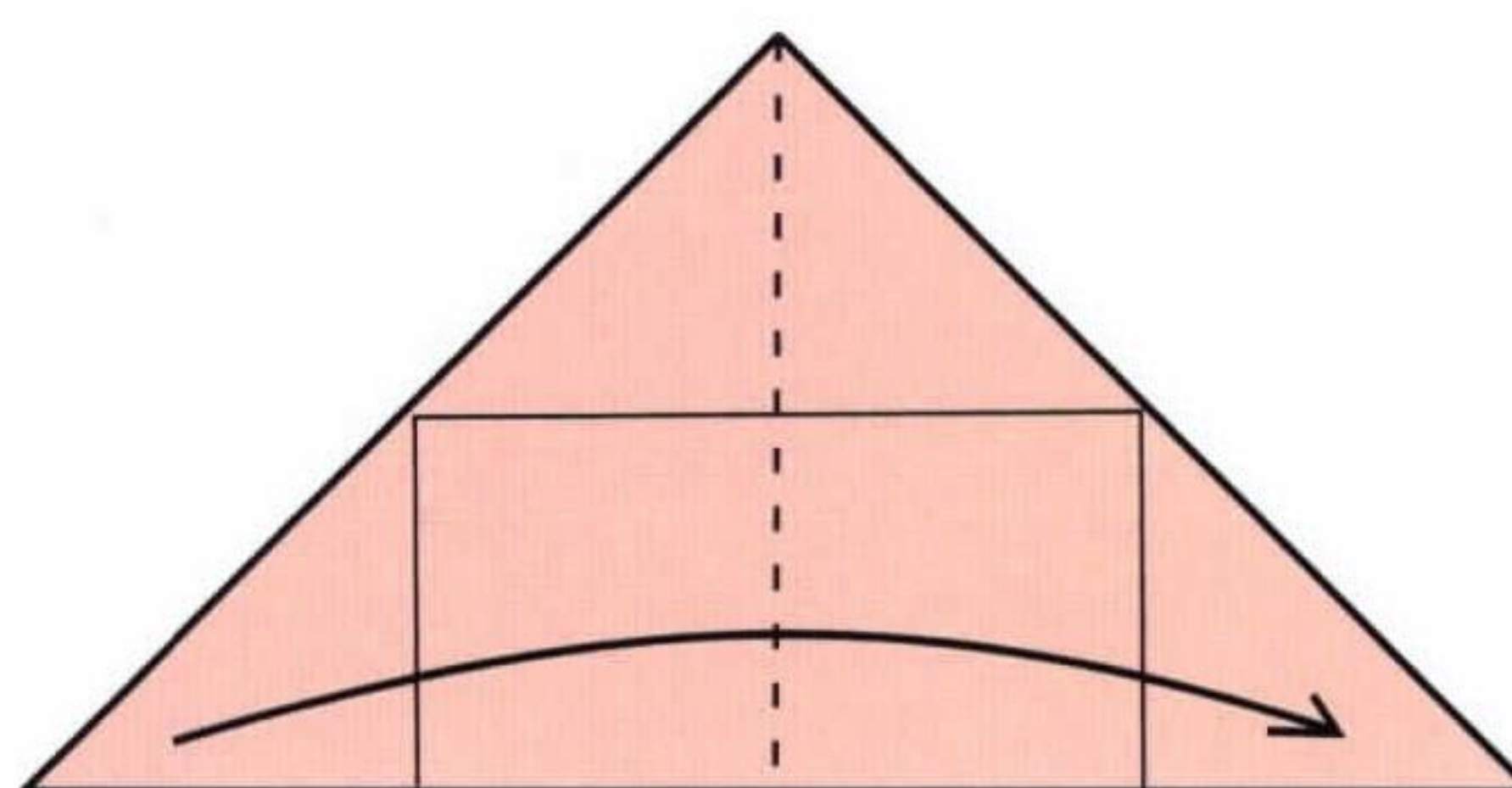
1. For the wet-folding method, cut a square of heavy art paper diagonally in half. Use each half for one bat. For the dry-folding method, fold a thin square of origami paper or foil diagonally in half. Either way, the starting shape is an isosceles right triangle.



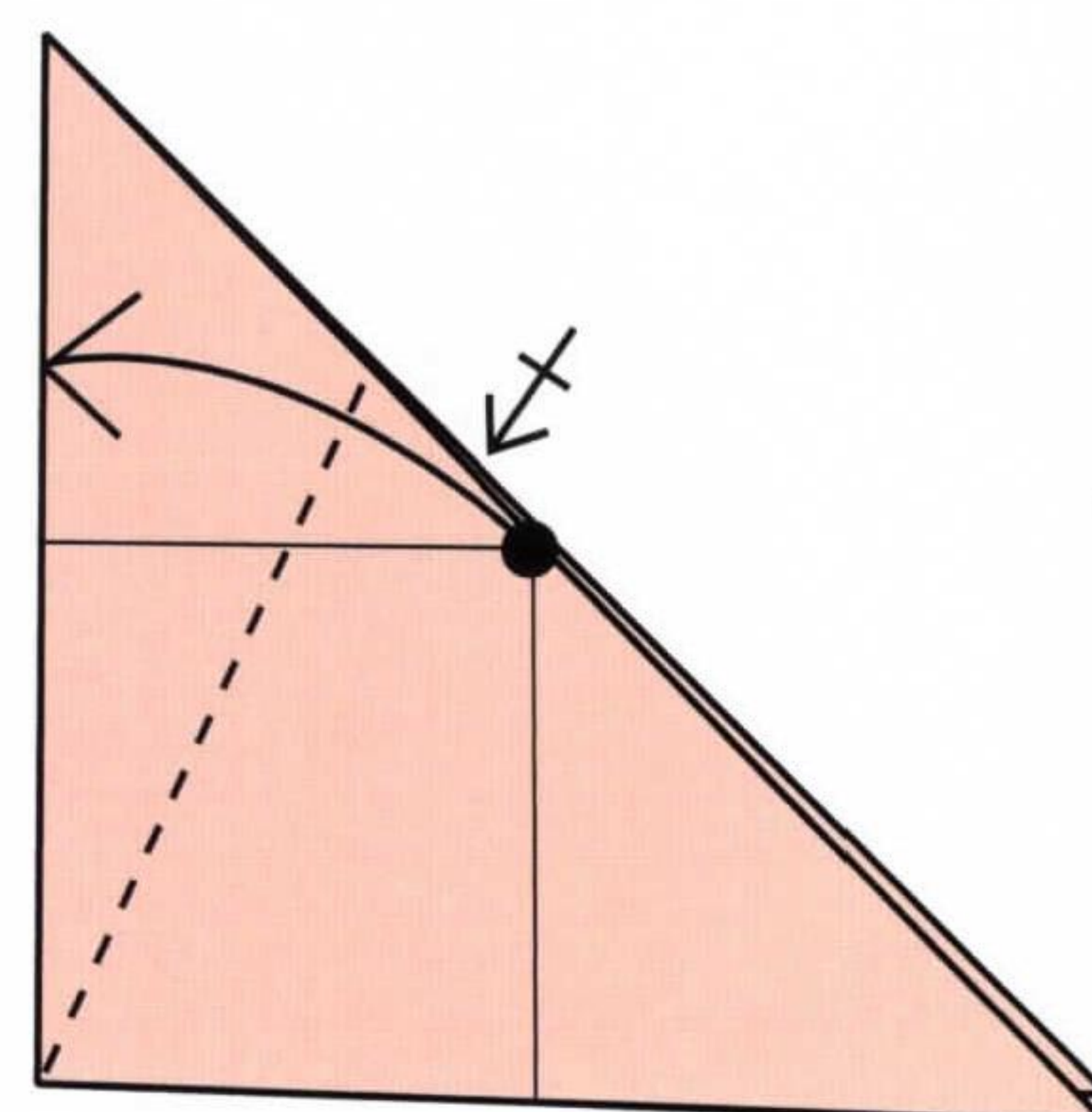
2. Fold in half, corner to corner, and unfold.



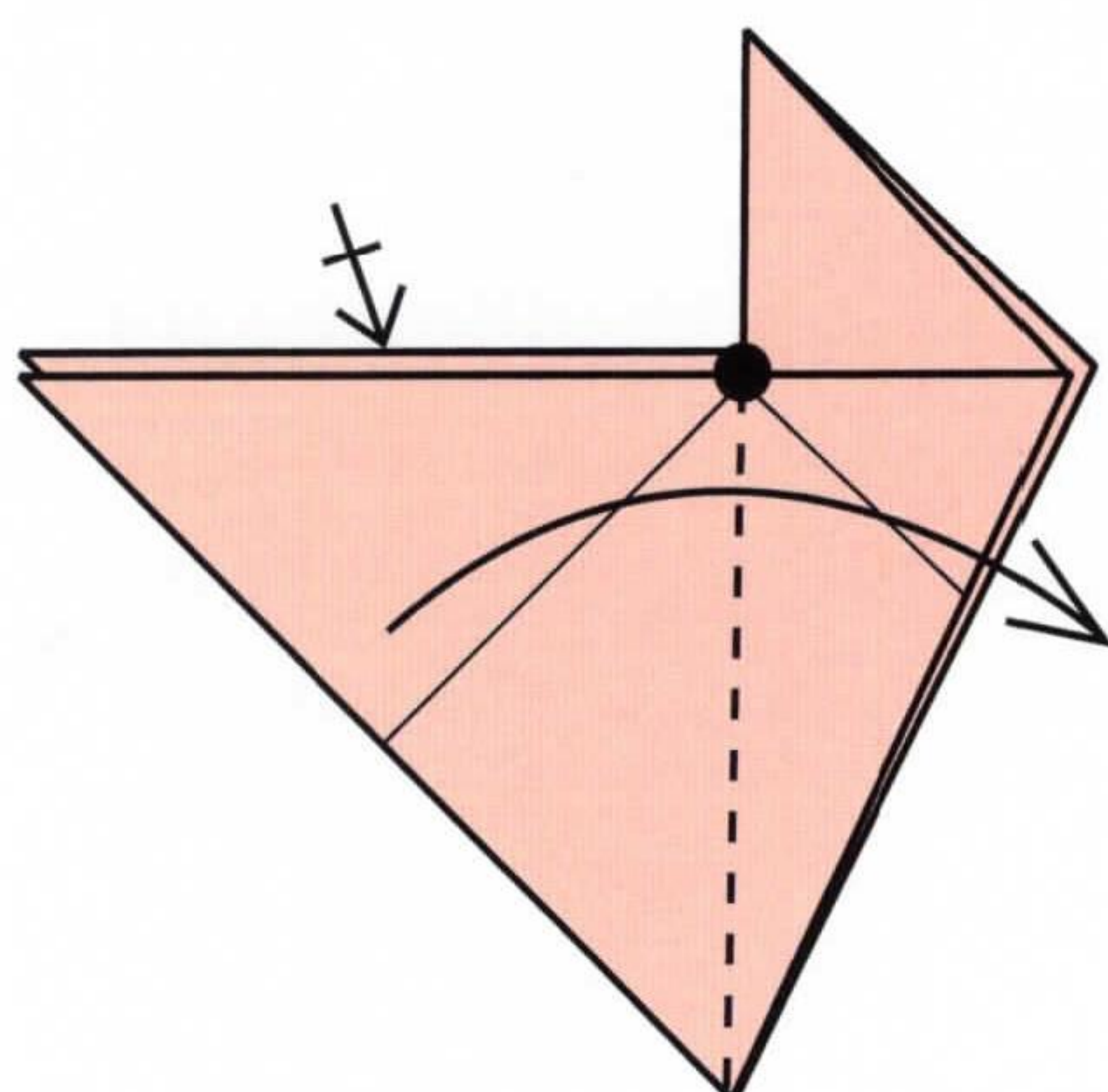
3. Fold each corner to the middle of the bottom edge. Unfold all.



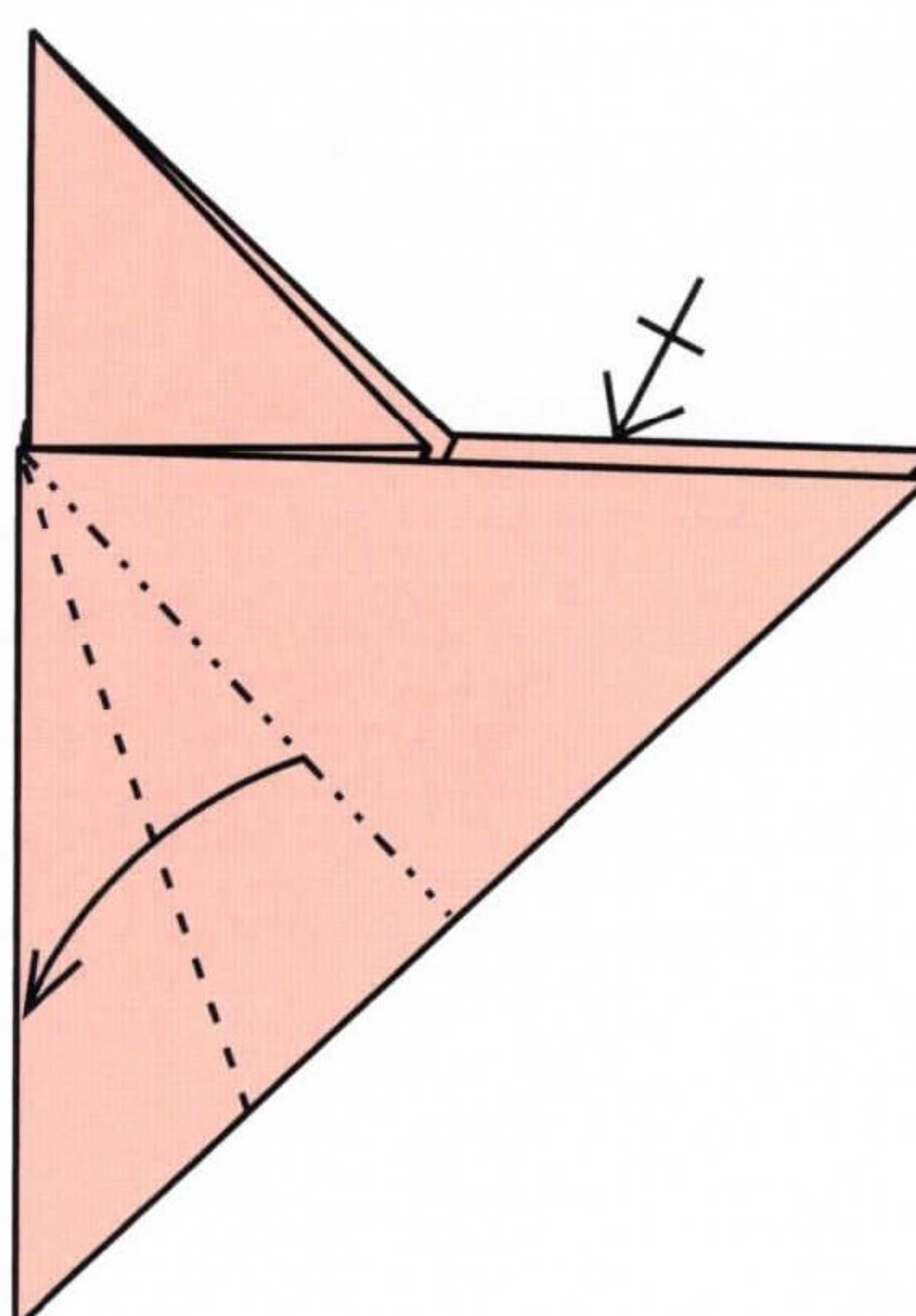
4. Fold in half.



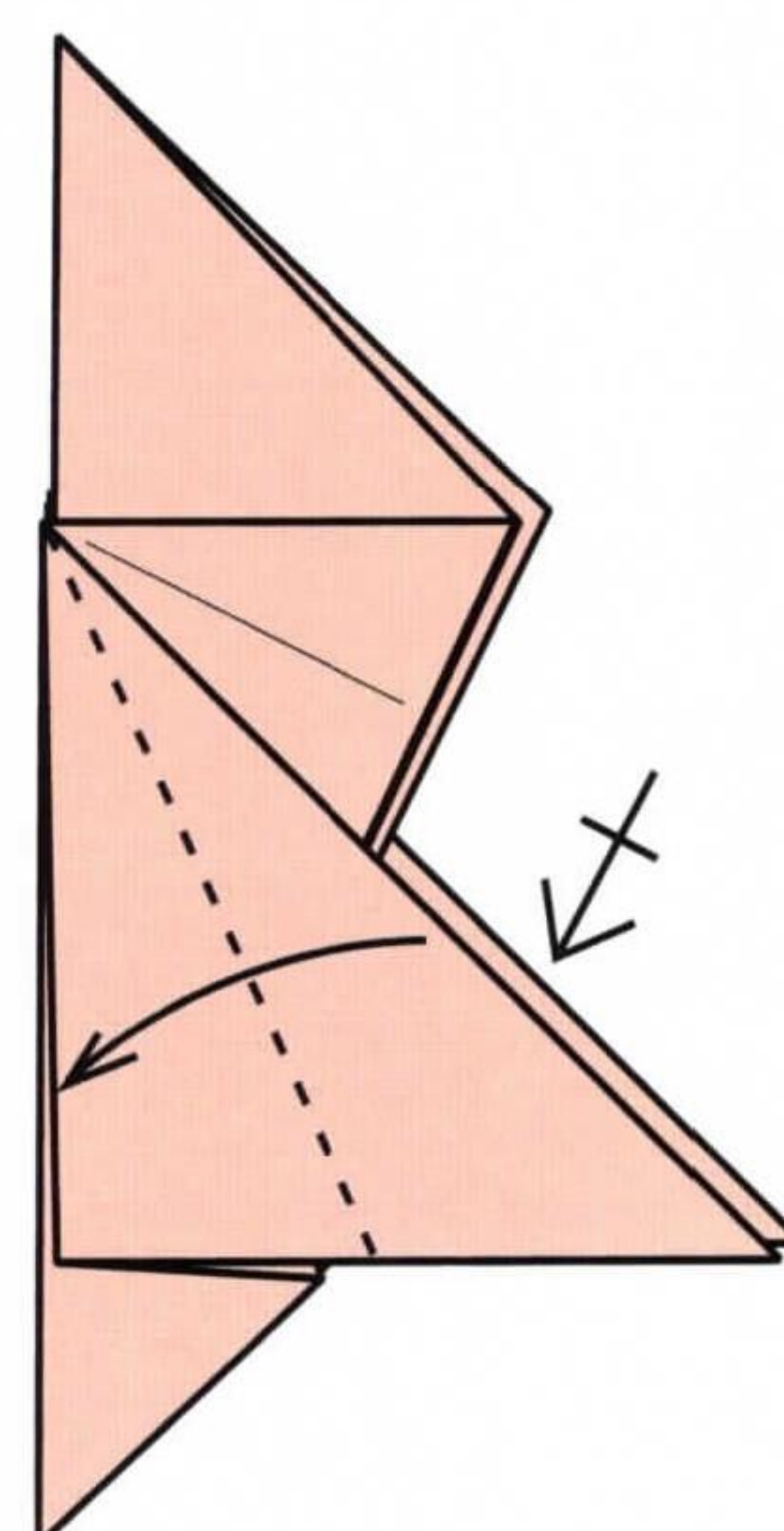
5. Place the point of the intersecting creases, indicated with a dot, on the folded edge, ensuring that the fold intersects the square corner. Repeat behind.



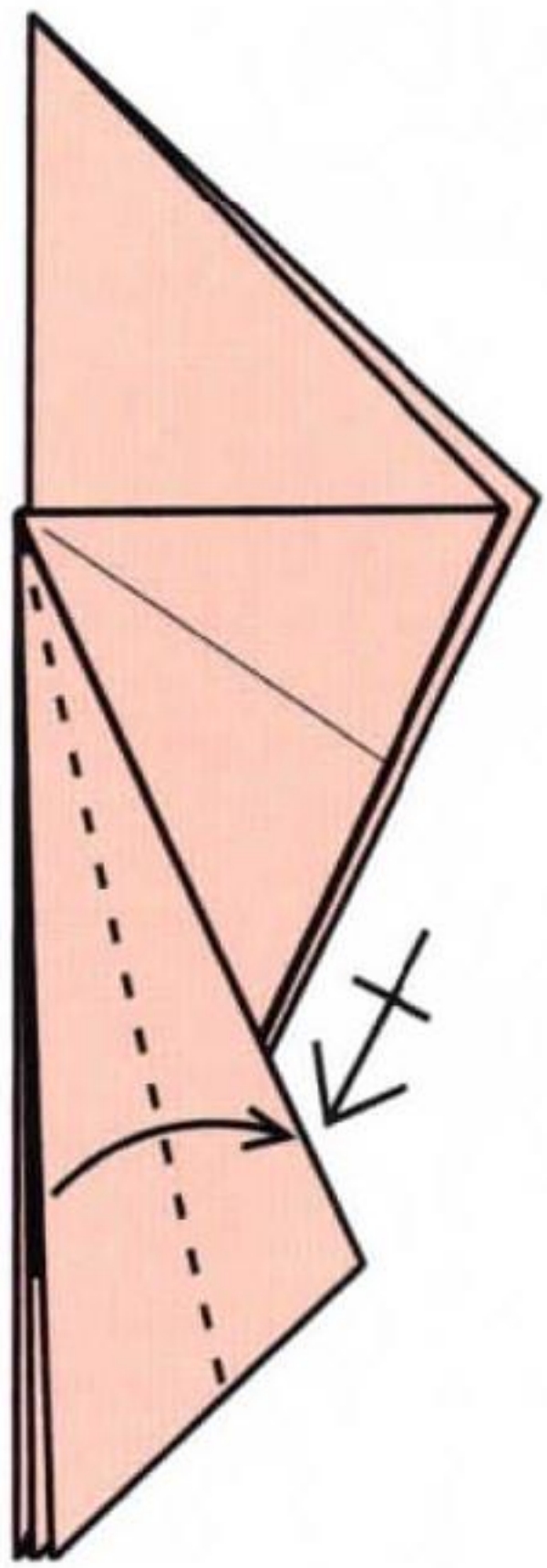
6. Fold to the right. Repeat behind.



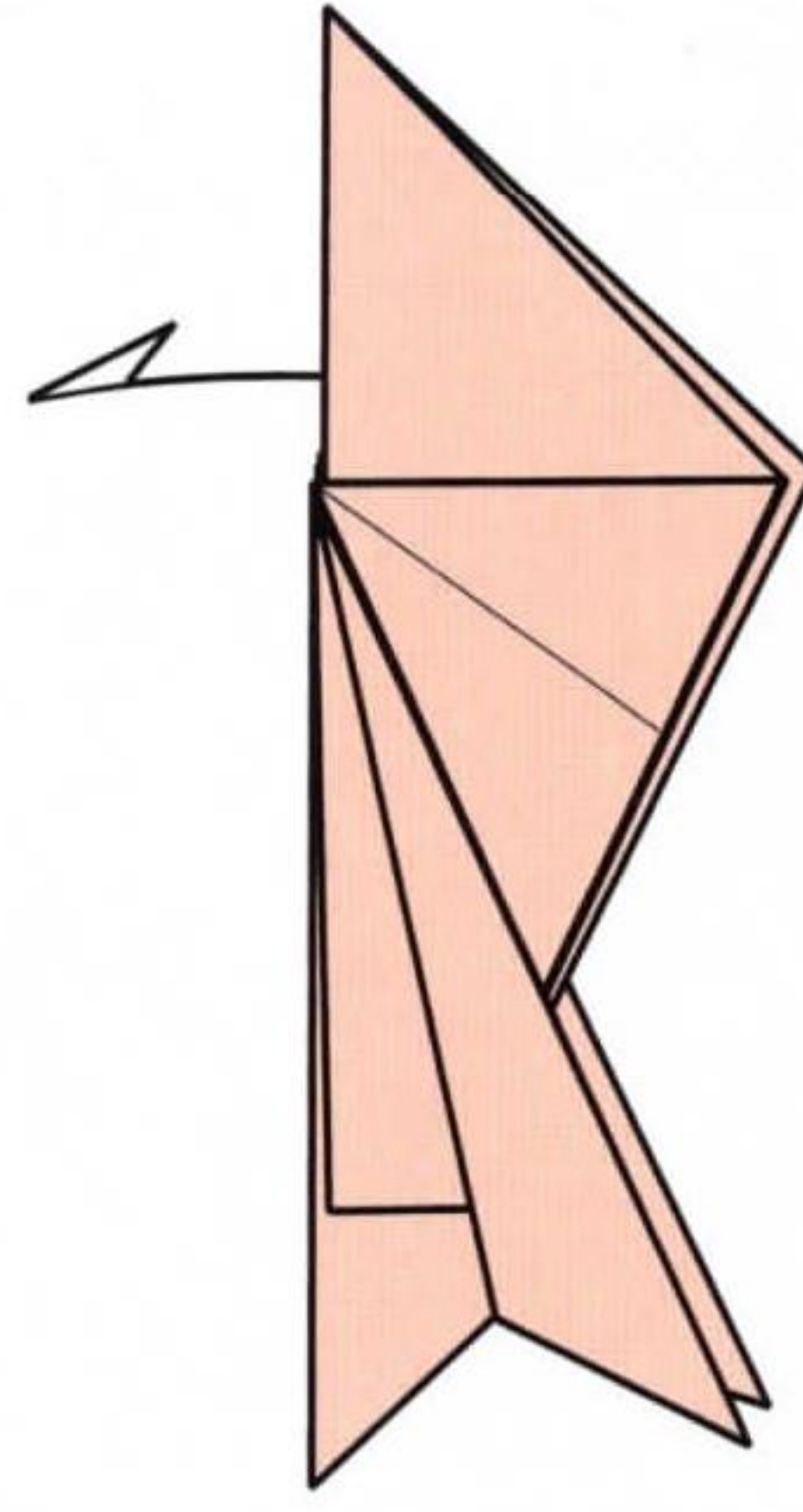
7. Move the mountain crease to the folded edge. Repeat behind.



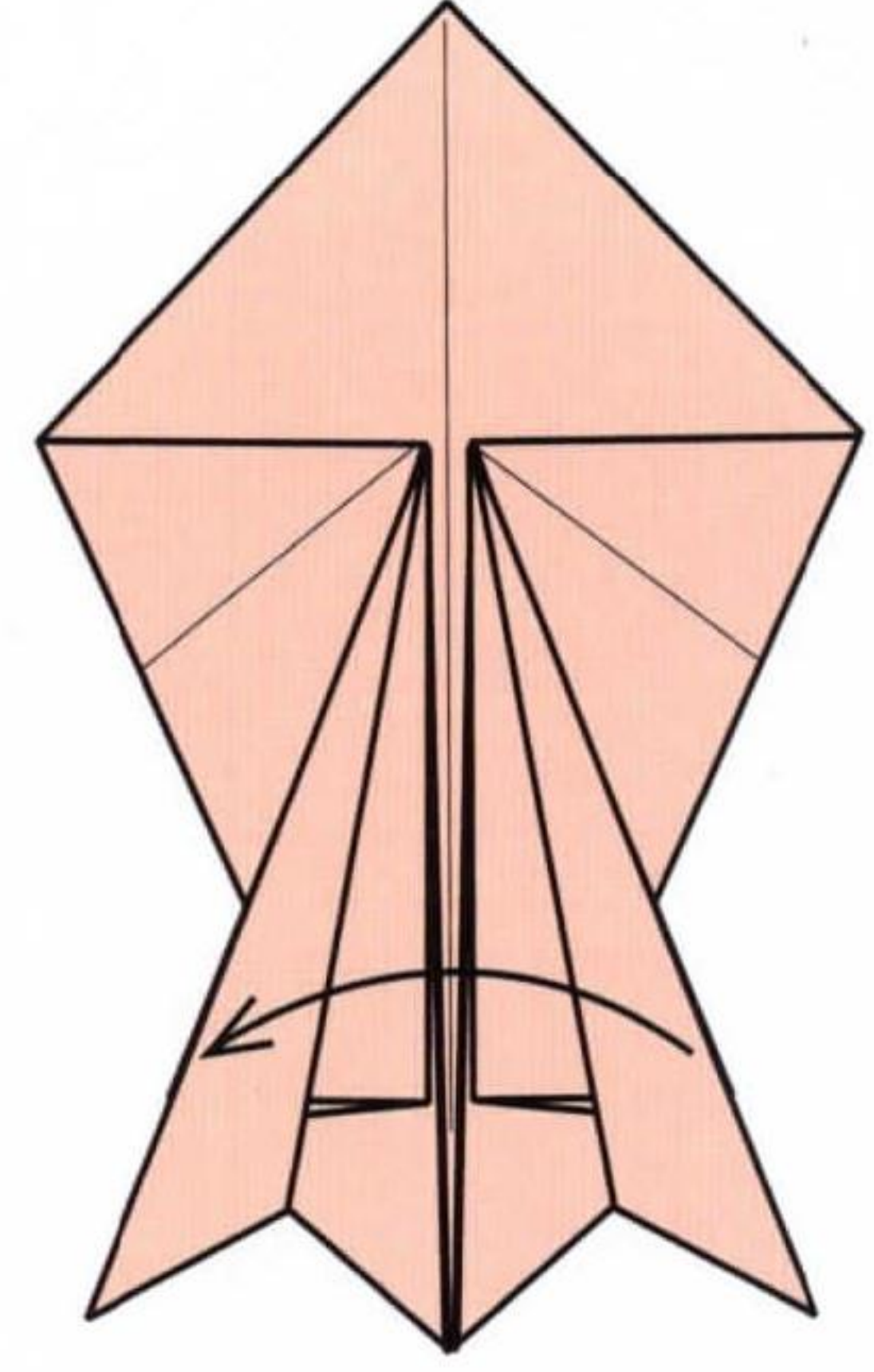
8. Fold the free edge to the folded edge. Repeat behind.



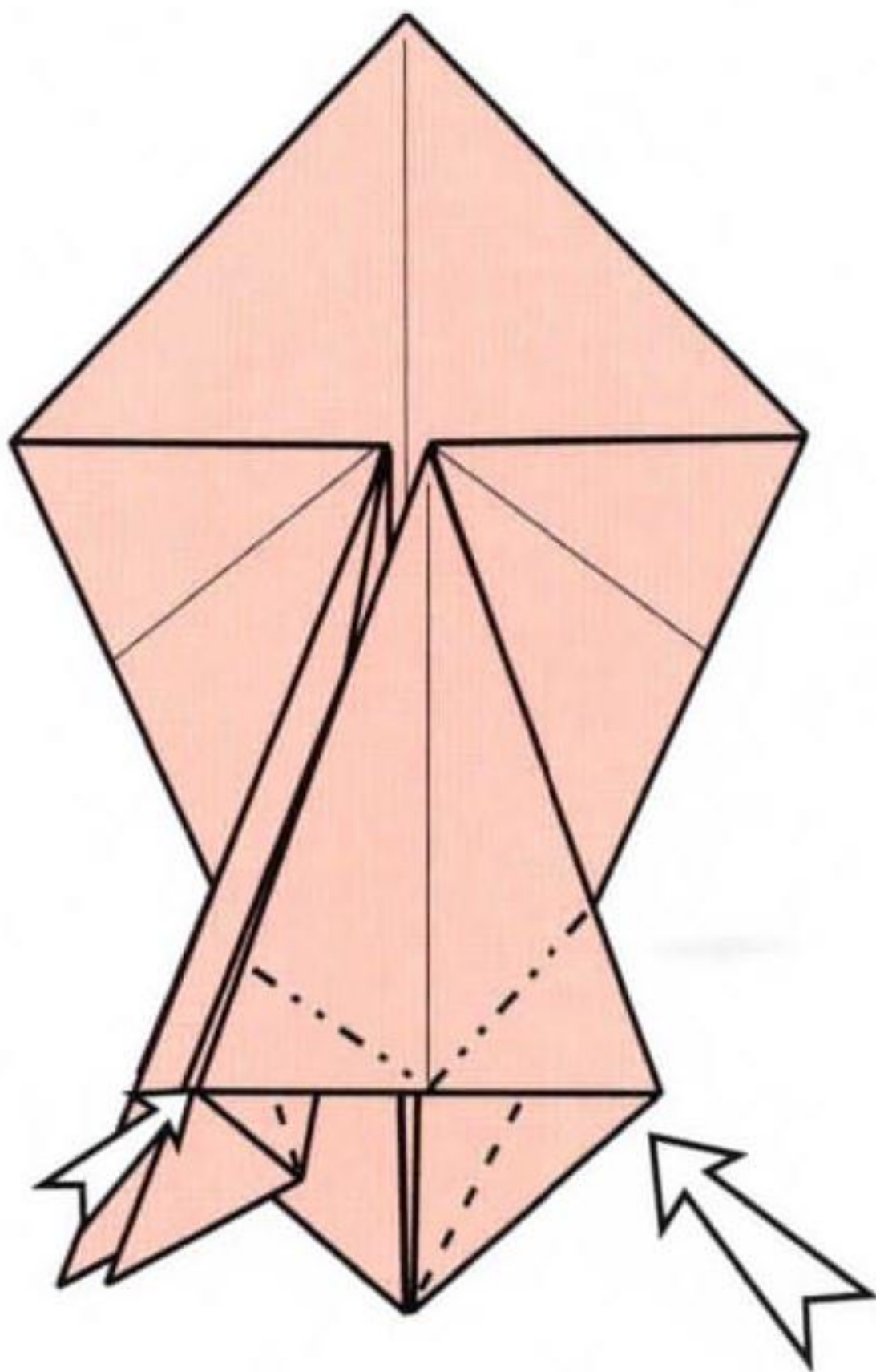
9. Fold the free edge to the folded edge.
Repeat behind.



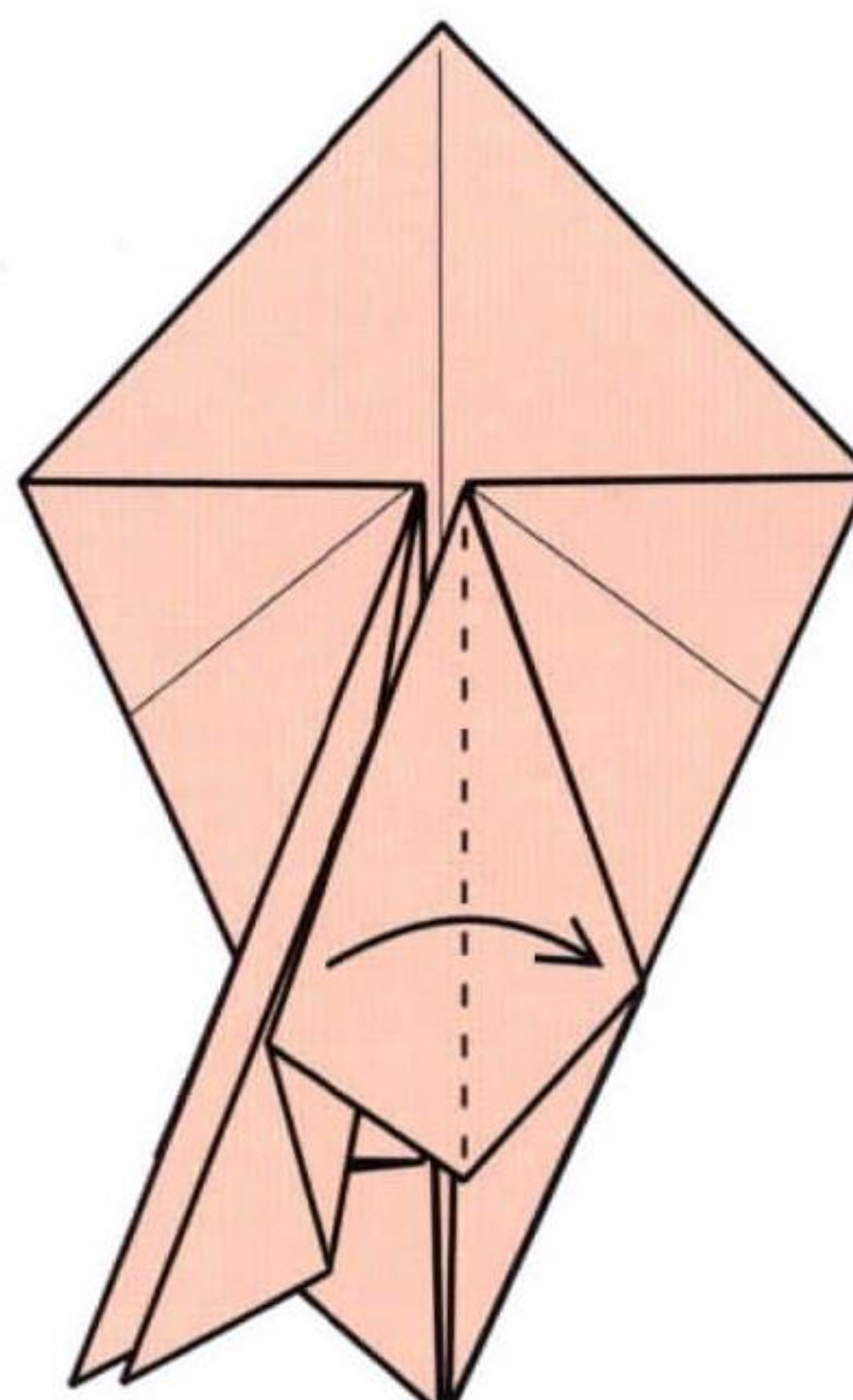
10. Open by moving the back layer
to the front.



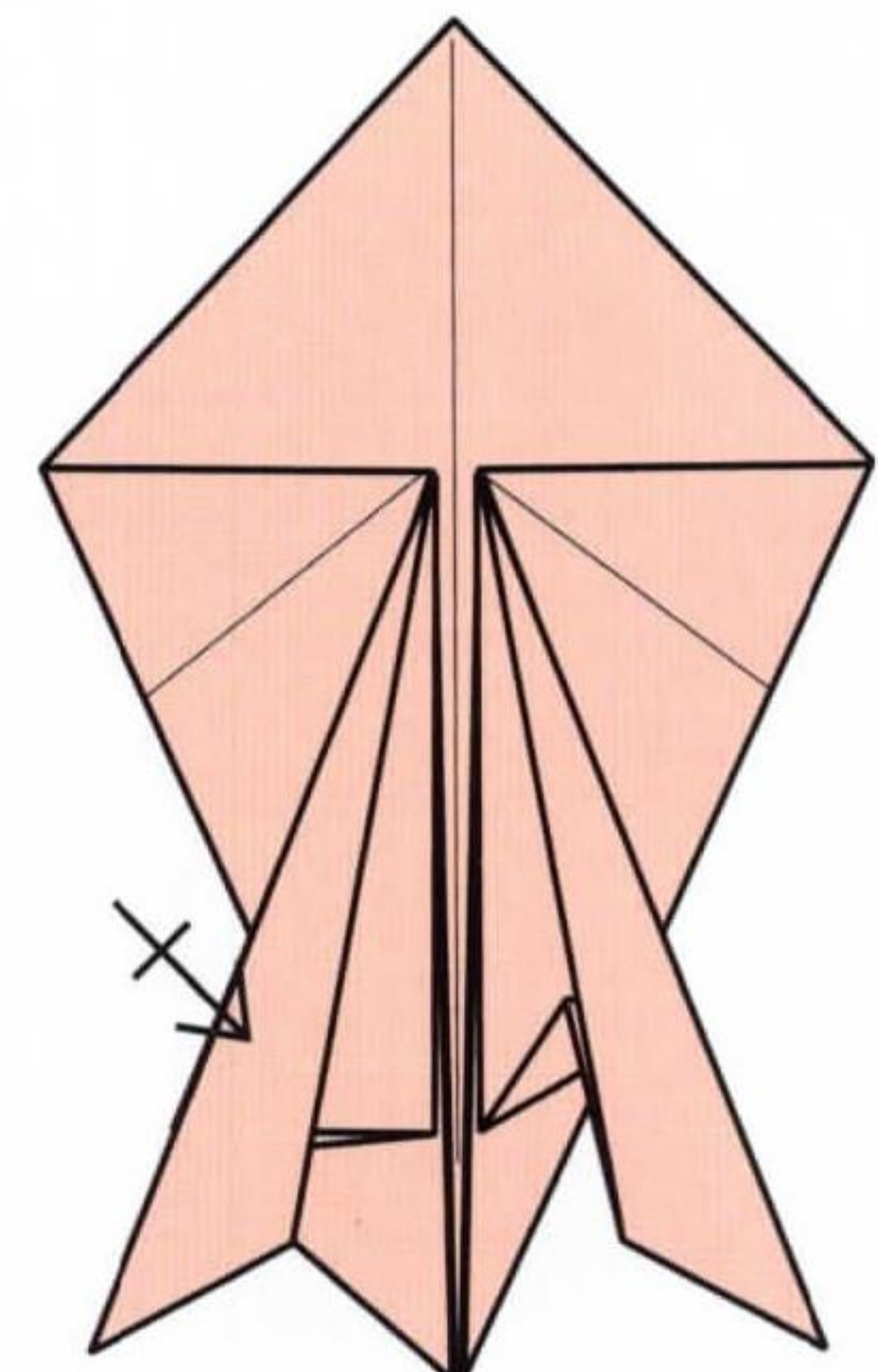
11. Move the right layers to the left.
Look ahead at step 12 to see which layer
is topmost.



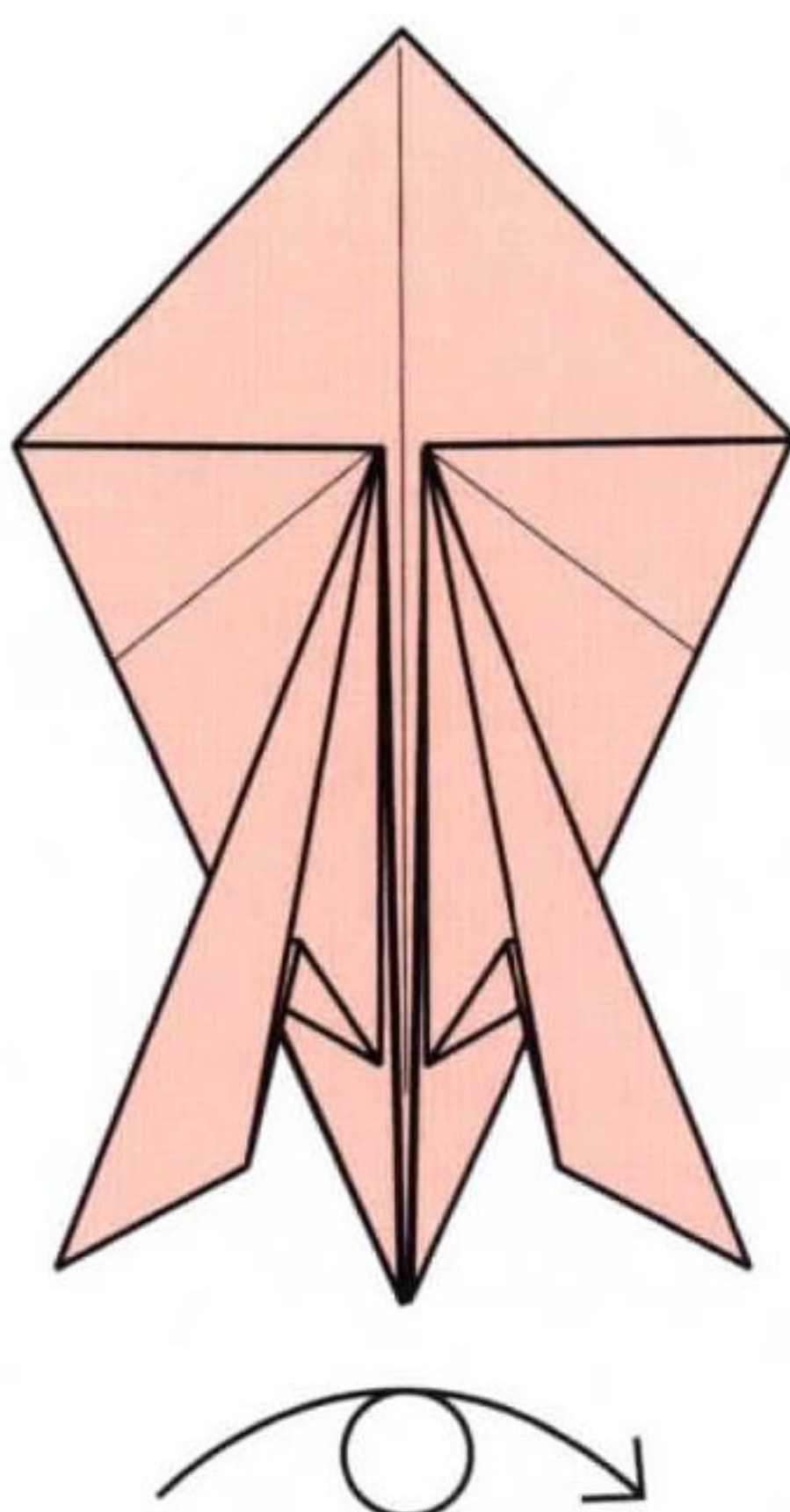
12. Inside-reverse-fold the left and right
bottom edges.



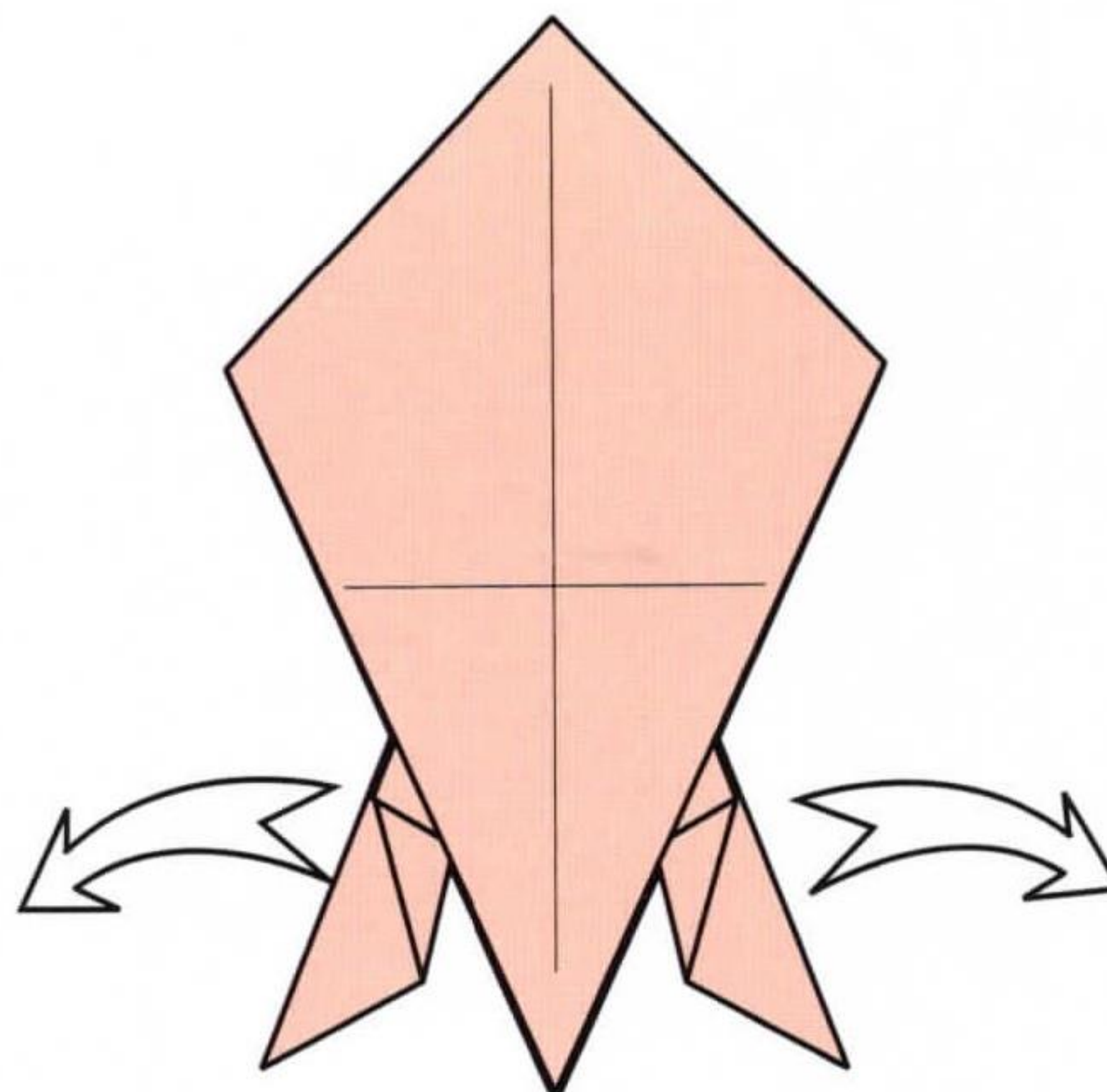
13. Replace layers to the right.



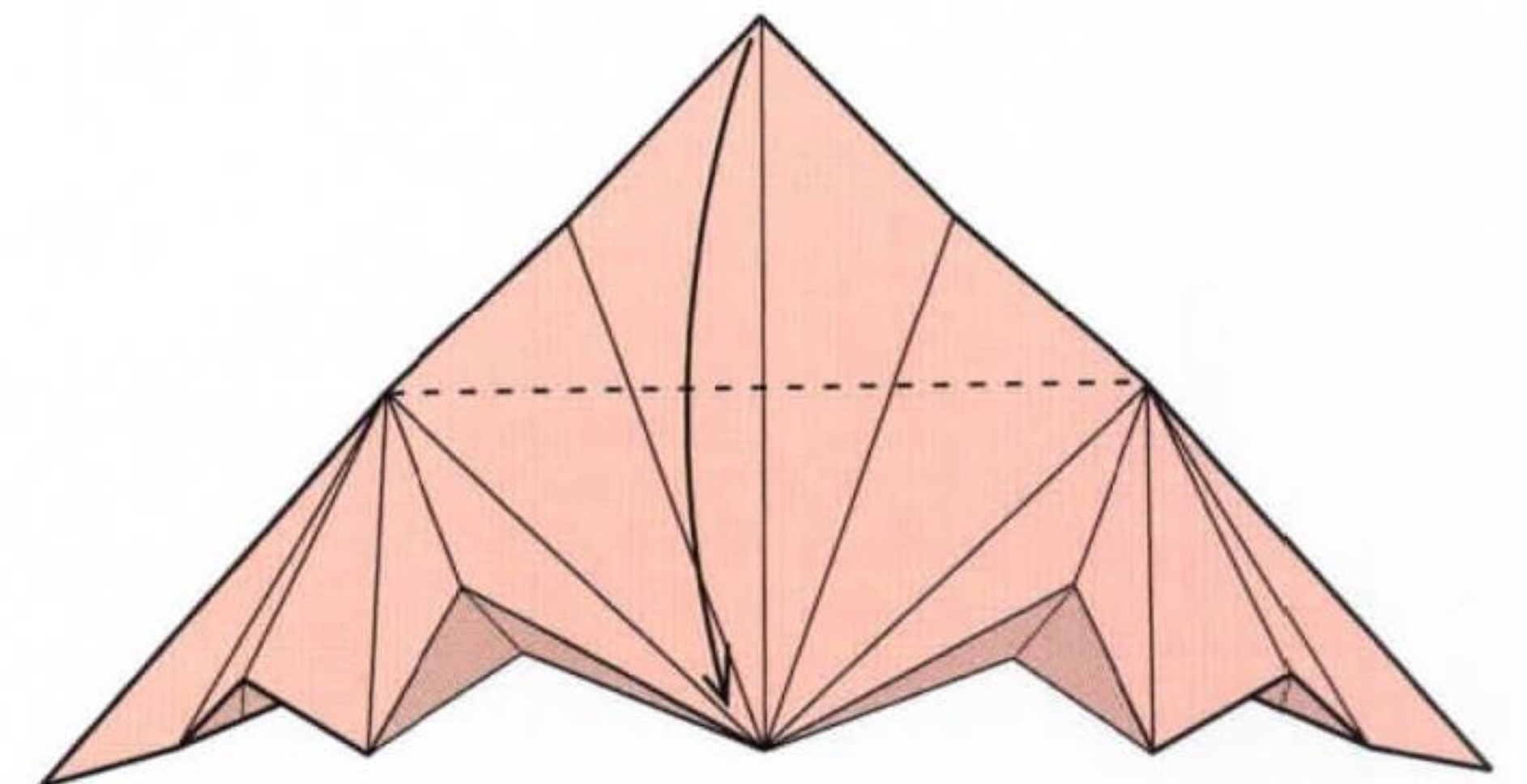
14. Repeat steps 11 through 13 on the left.



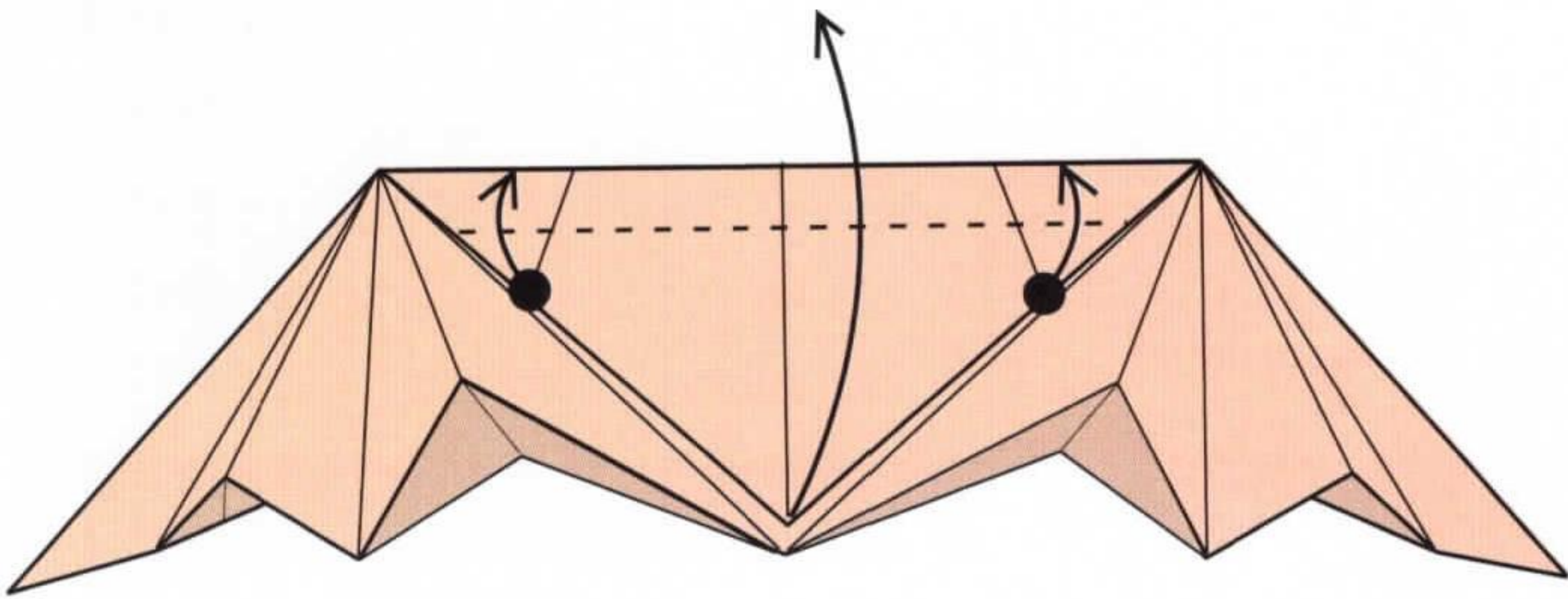
15. Turn over, left to right.



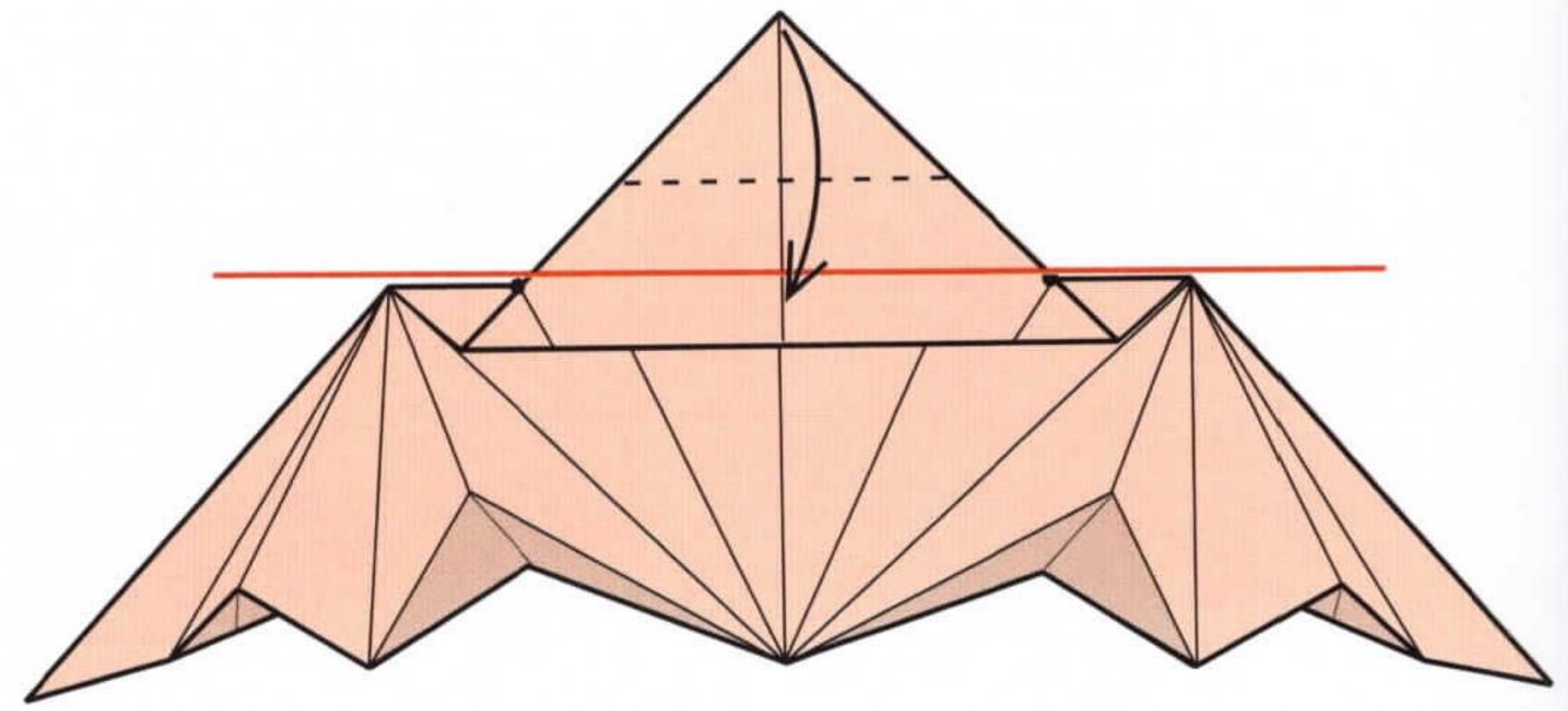
16. Pull the wings open.



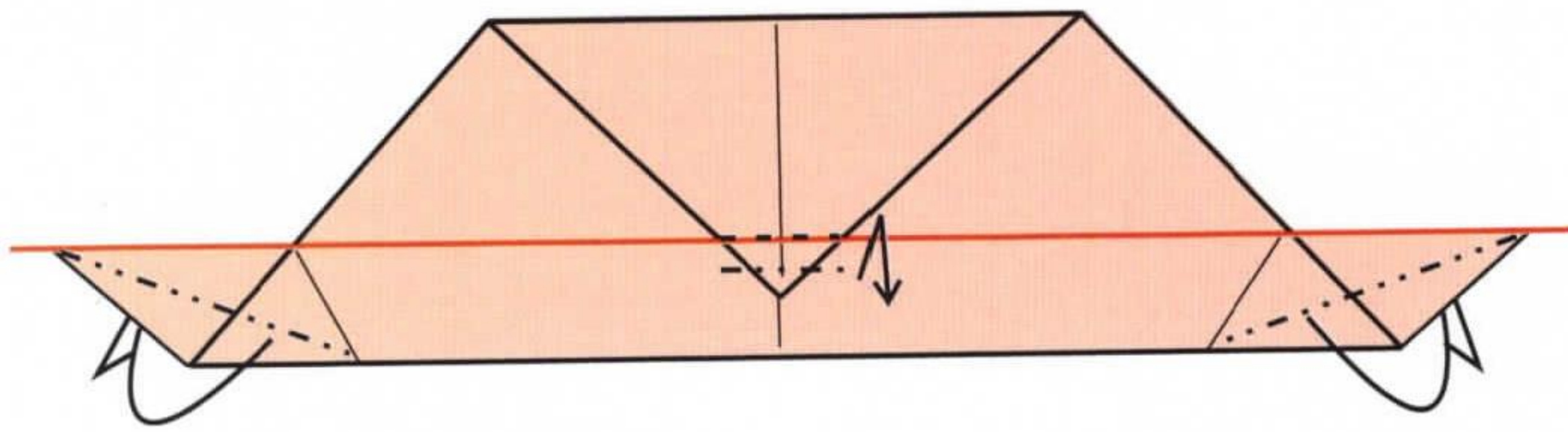
17. Fold down the top corner to touch
the bottom center.



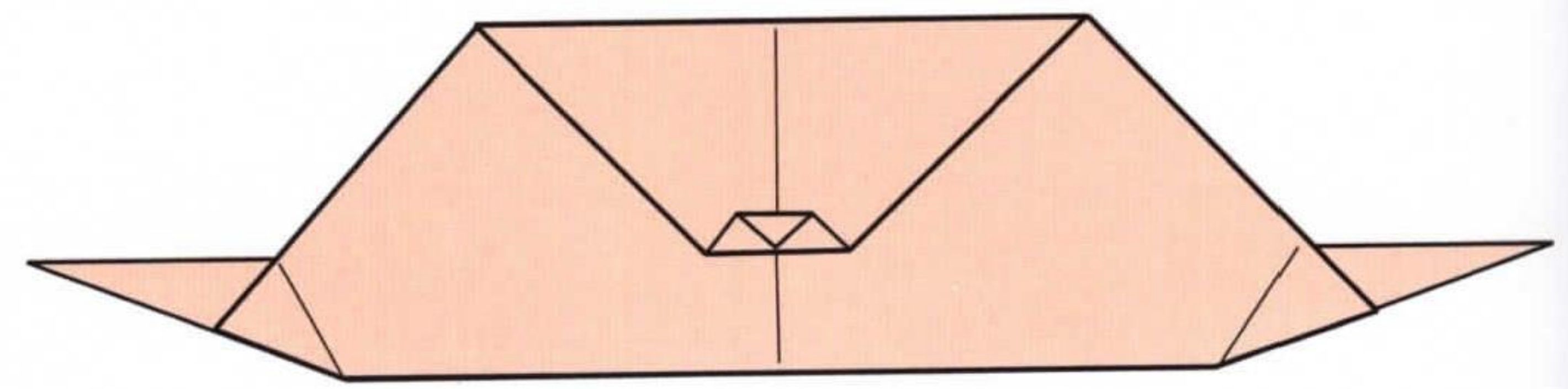
18. Fold the corner up. The correct amount can be judged by placing the ends of the indicated creases (black dots) on the top folded edge.



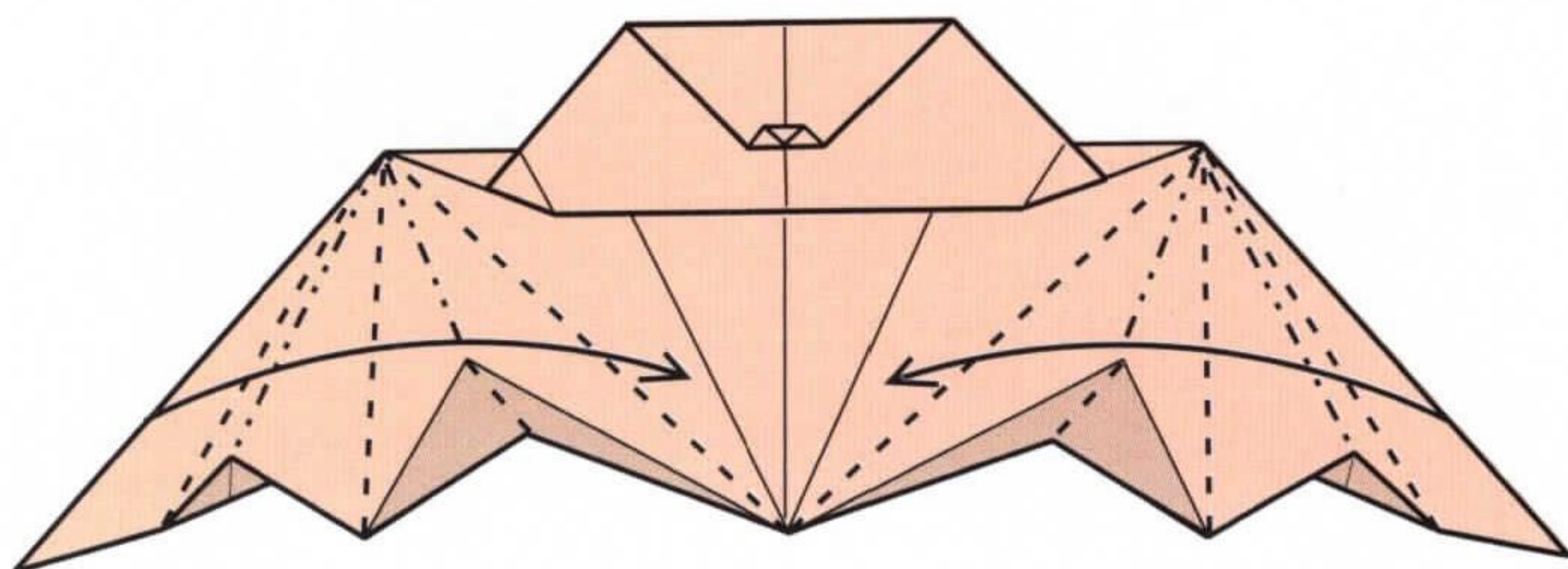
19. Fold the top corner down so the corner is below the level of the red line but not touching the folded edge.



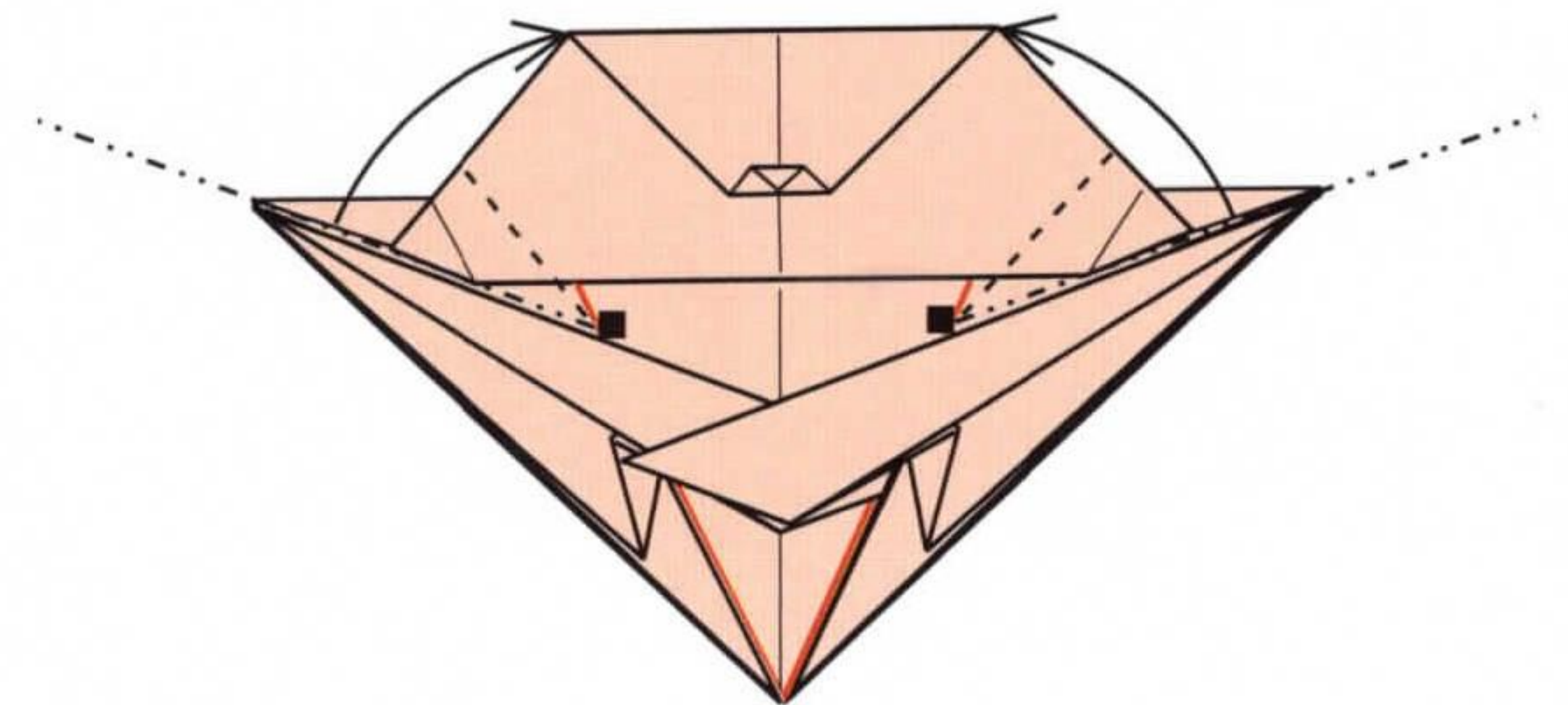
20. Fold the corner up to the level of the red line. Fold the corner down to touch the middle of the folded edge below. Mountain-fold the indicated edges under as far as possible.



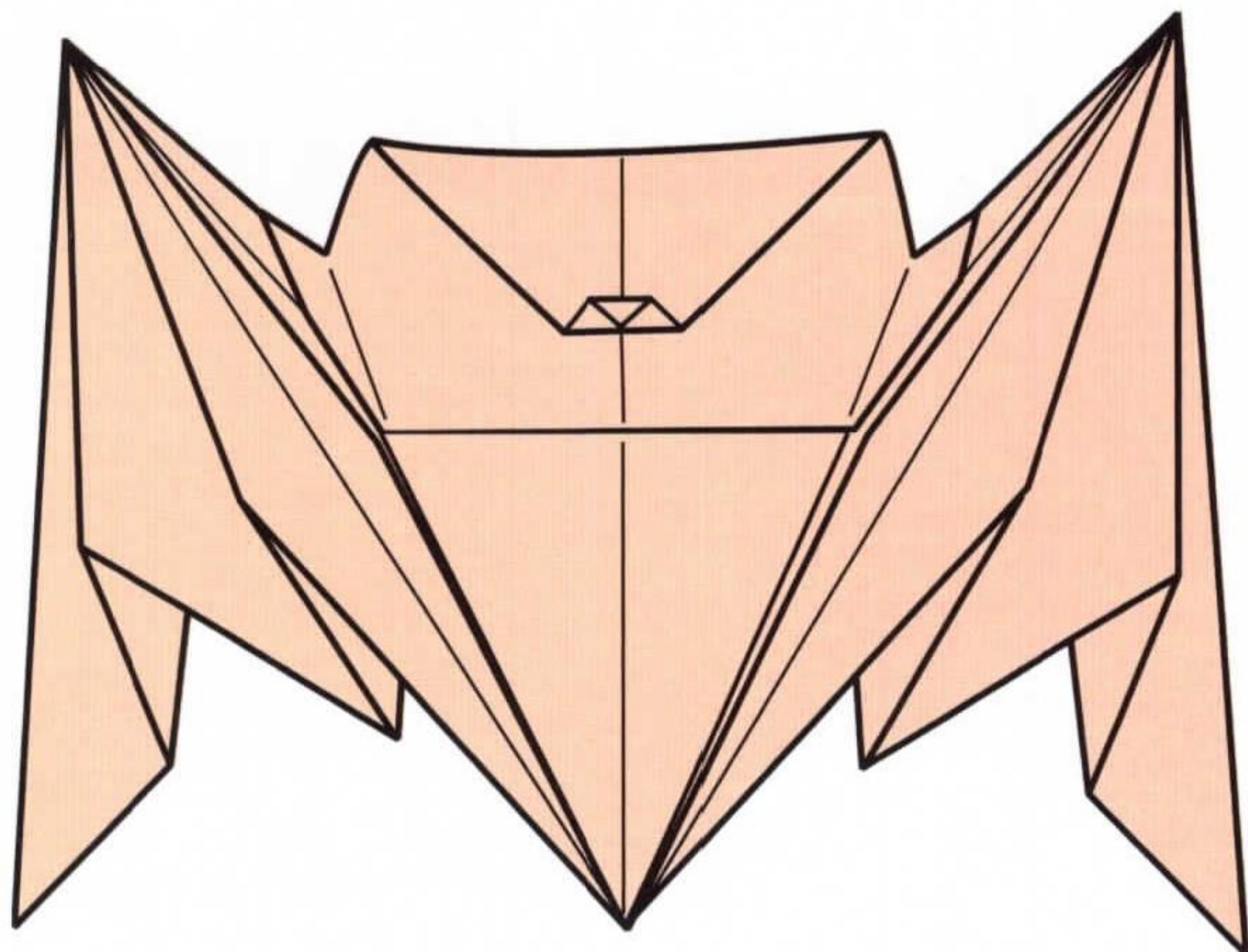
21. The top of your paper should look like this.



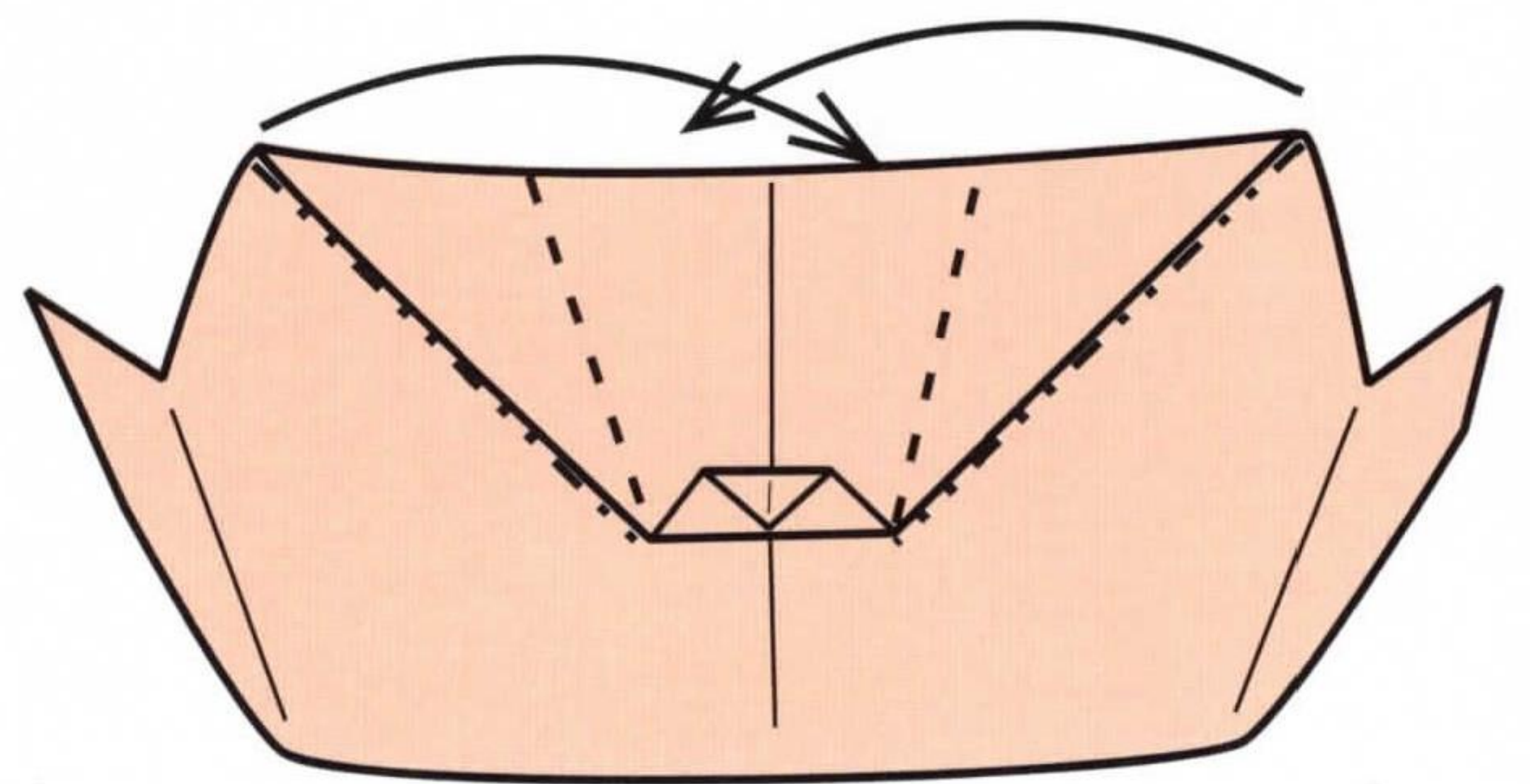
22. Use the pleats in the wings to close and flatten the model.



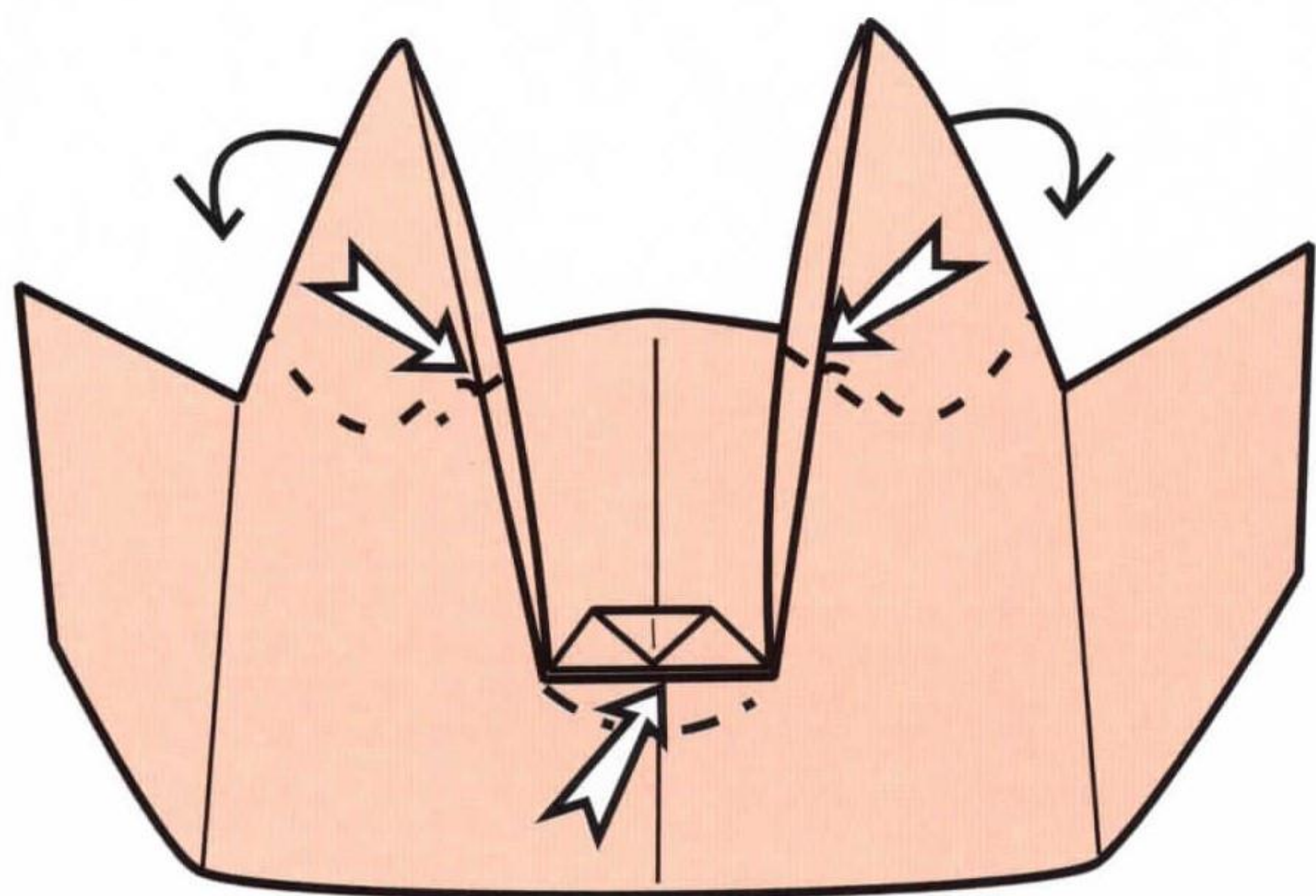
23. Mountain-fold along the edges of the wings from their outward corners down to the creases on the body indicated by the black squares. Move these mountain-folded edges of the wings up to the top corners of the head, valley-folding between to make the body plump.



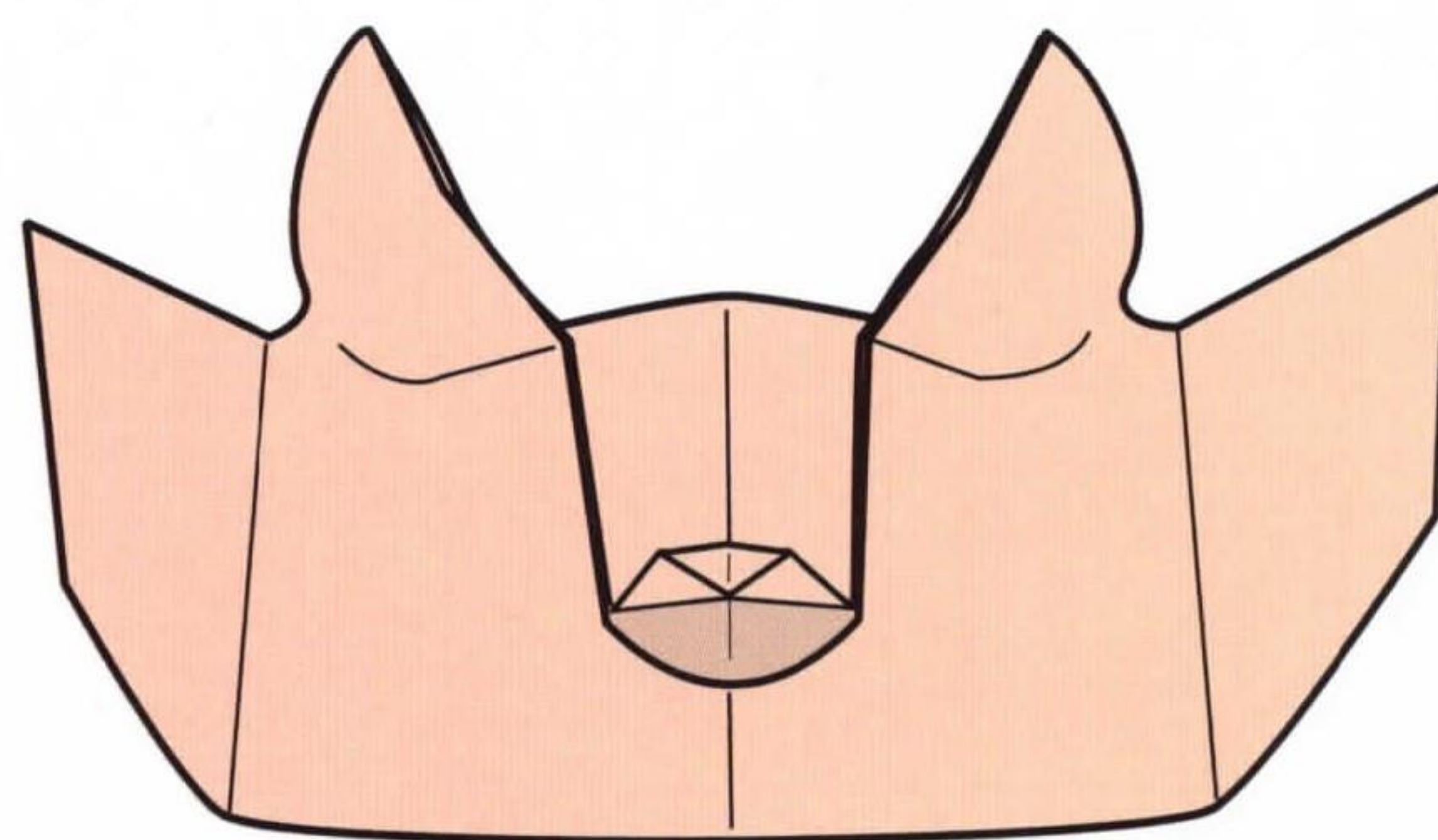
24. Open the wings slightly.



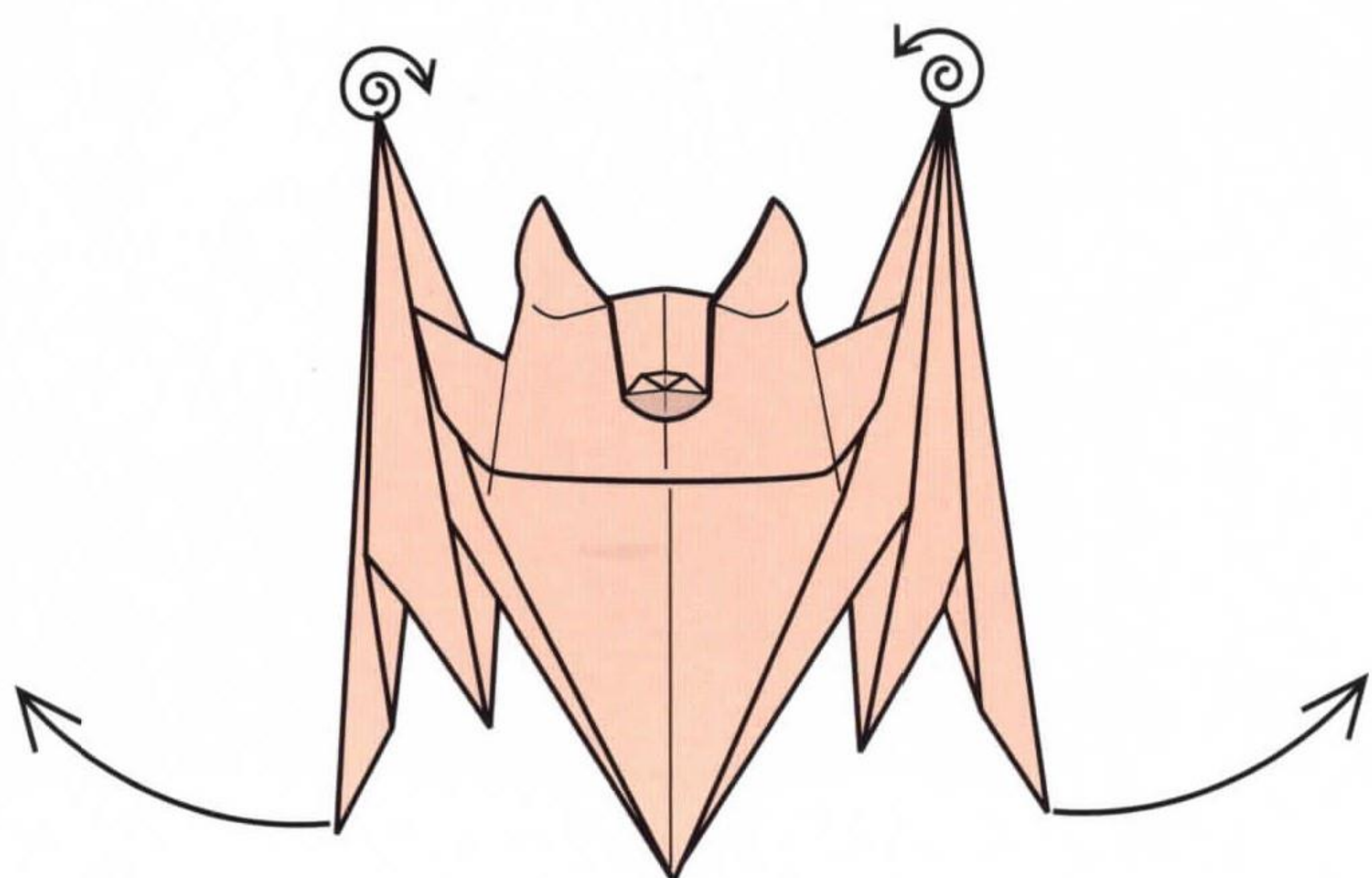
25. Mountain-fold along the cut edges of the top layer of paper on the head, stopping at the mouth corners. Fold the top corners of the head over each other and raise them straight up for the ears.



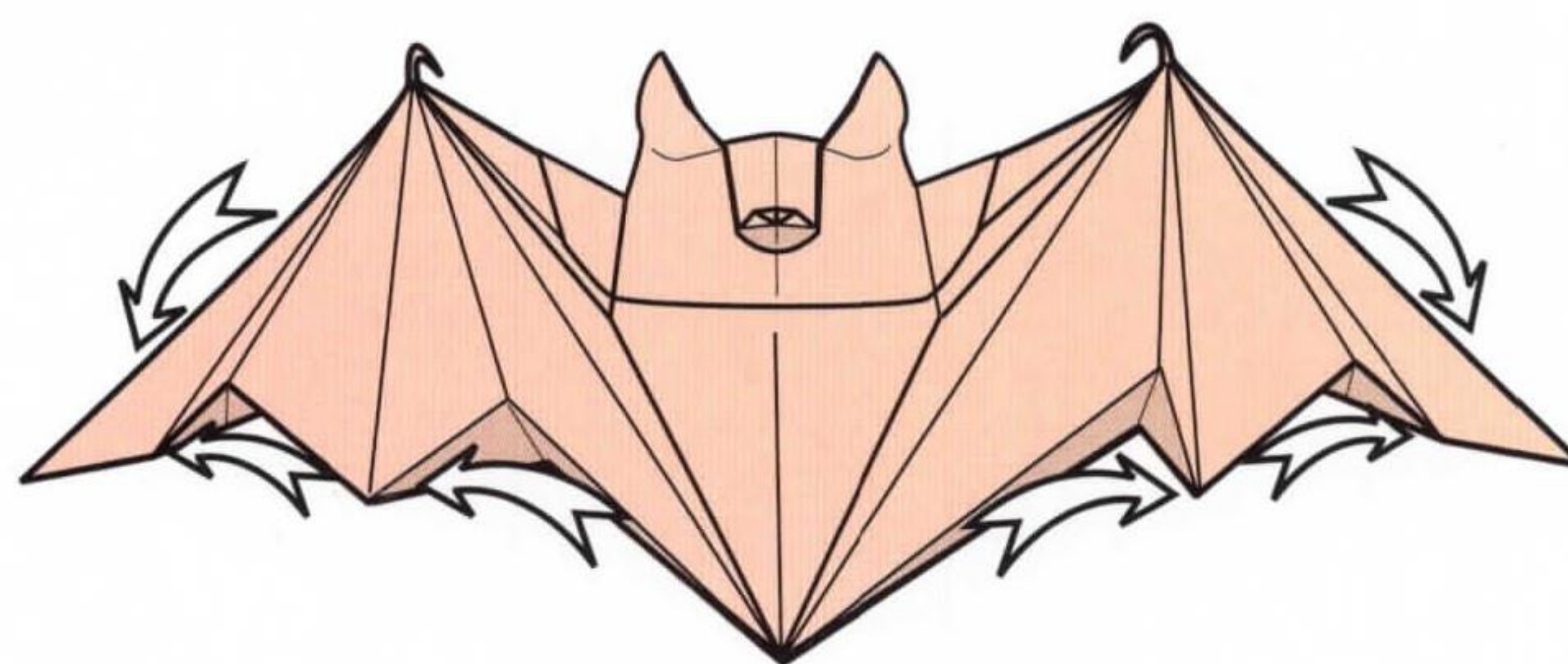
26. Twist the ears to face forward. Open the mouth (you may use the point of a skewer or pen to do this). Be creative and try for expression with these folds.



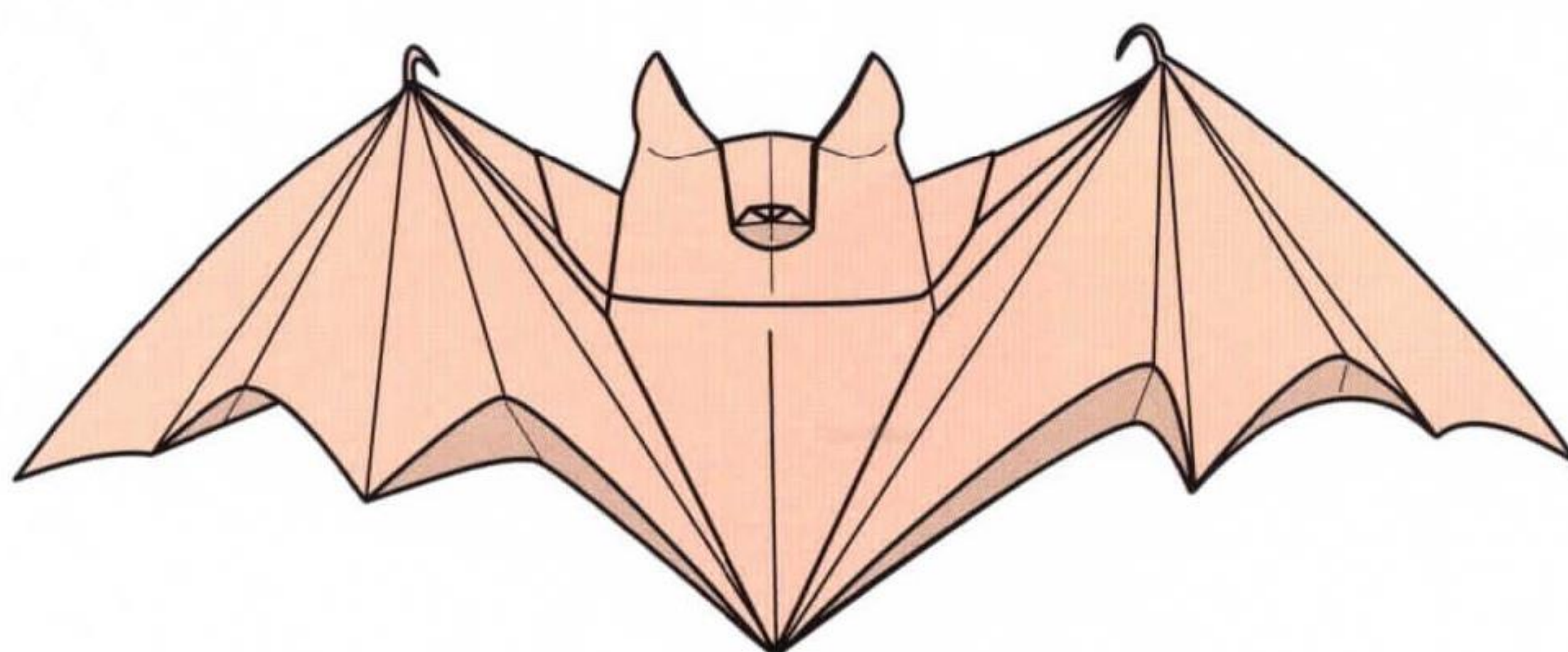
27. Detail of the head.



28. Open the wings wide. Curl the thumbs inward.



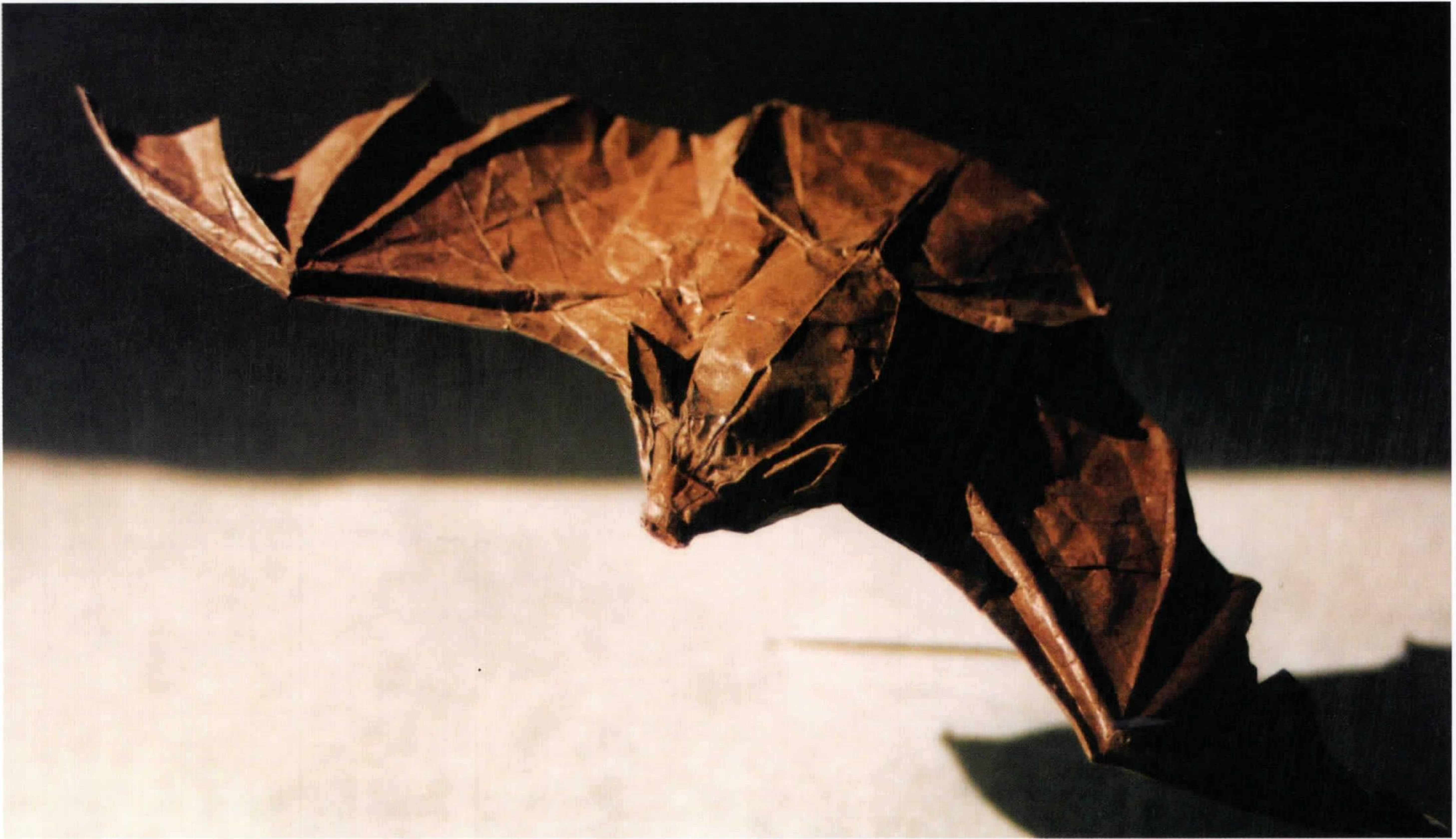
29. Make graceful curves in the outer edges and the scalloped underline of the wings.



30. The finished Happy Good-Luck Bat.

big brown bat

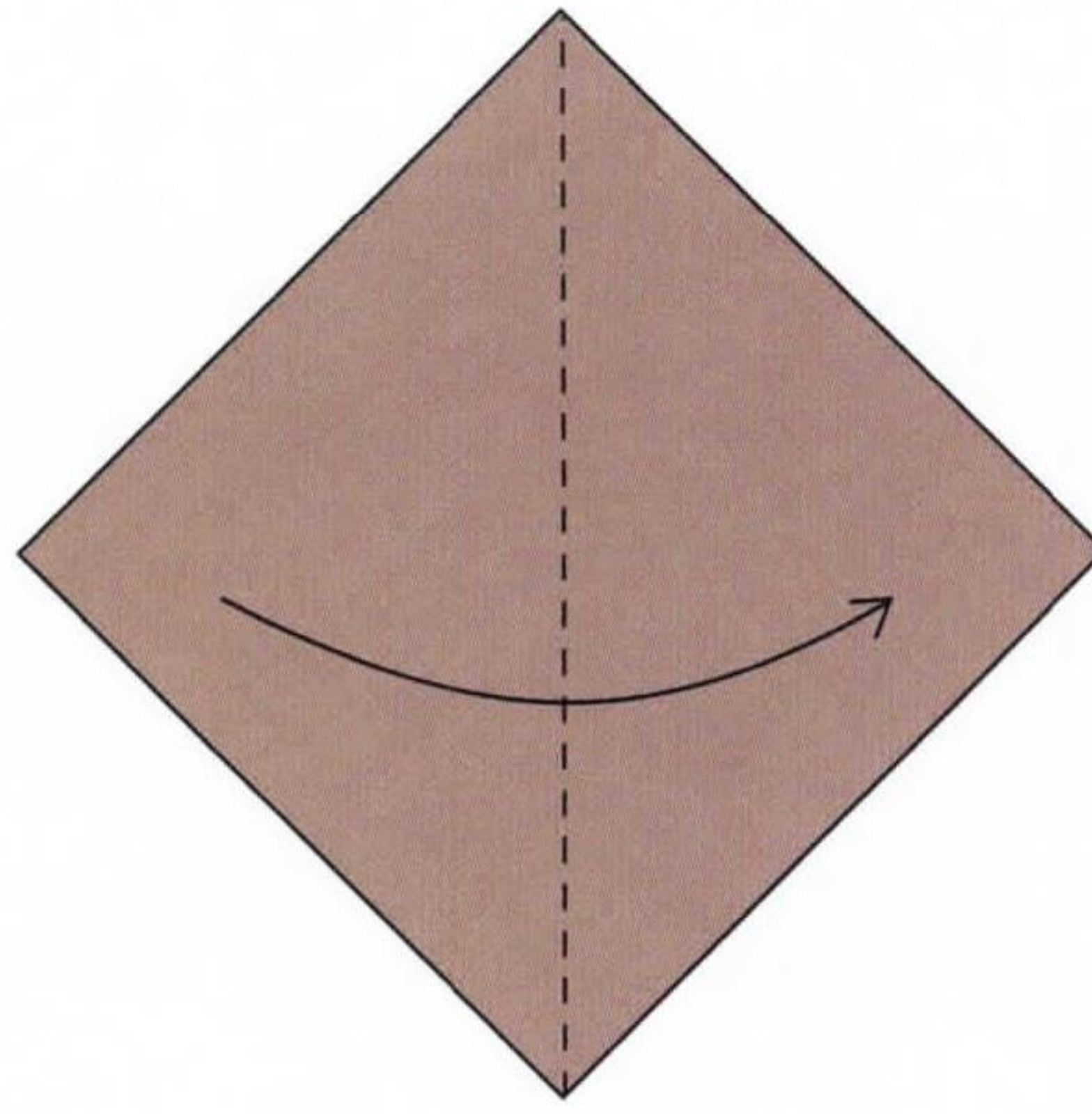
Designed by Michael G. LaFosse



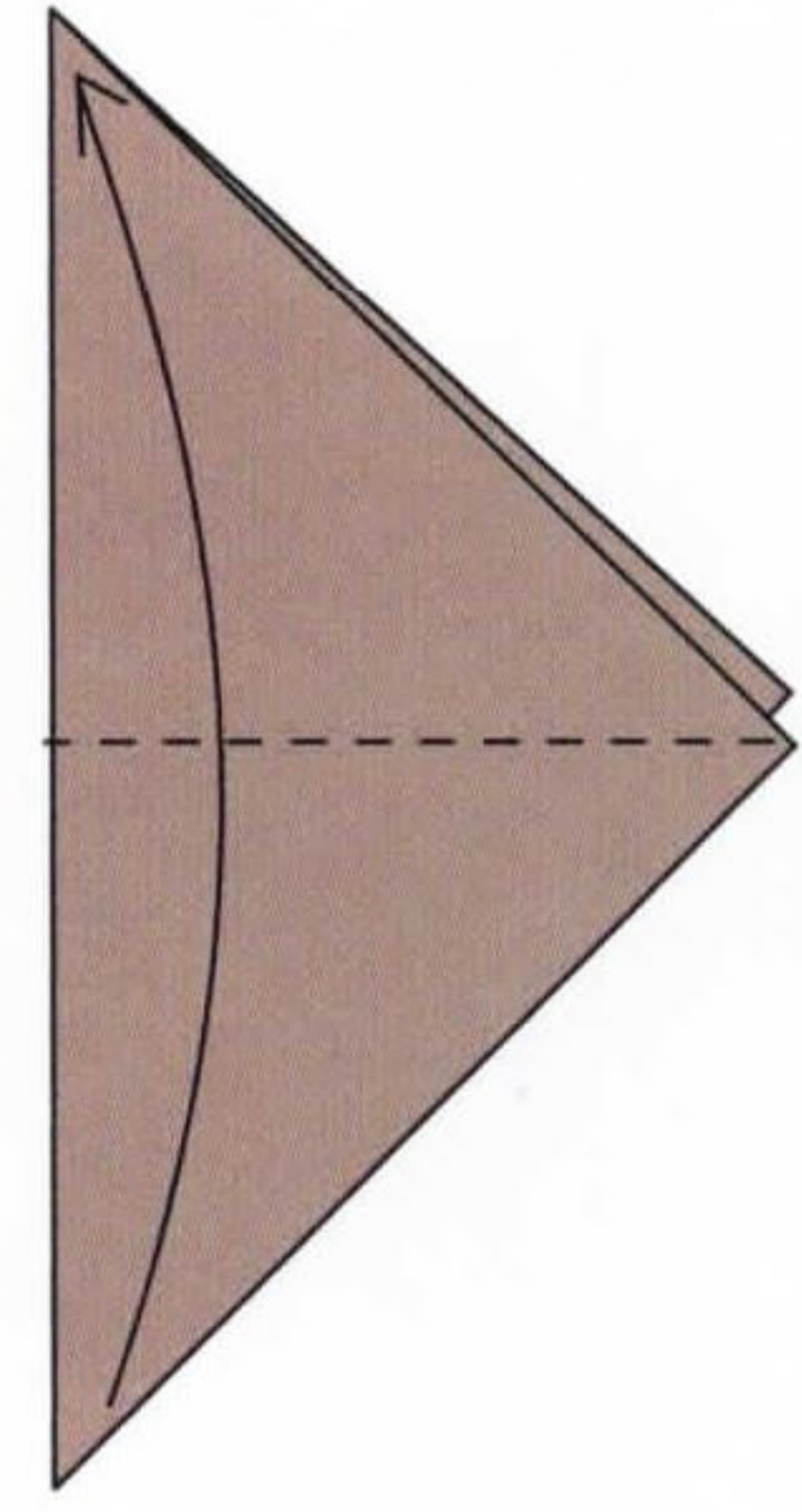
I was fortunate to work with these bats while in college working toward a degree in biology, which gave me an opportunity to study their form, postures and behaviors. Even so, it took scores of hours of origami experimentation to approximate the form and proportions of this bat, Eptesicus fuscus. More than any other origami work, this one reminds me of what master Yoshizawa said, "Remember that the paper is the flesh, and the folds are the bones."

PAPER SUGGESTIONS

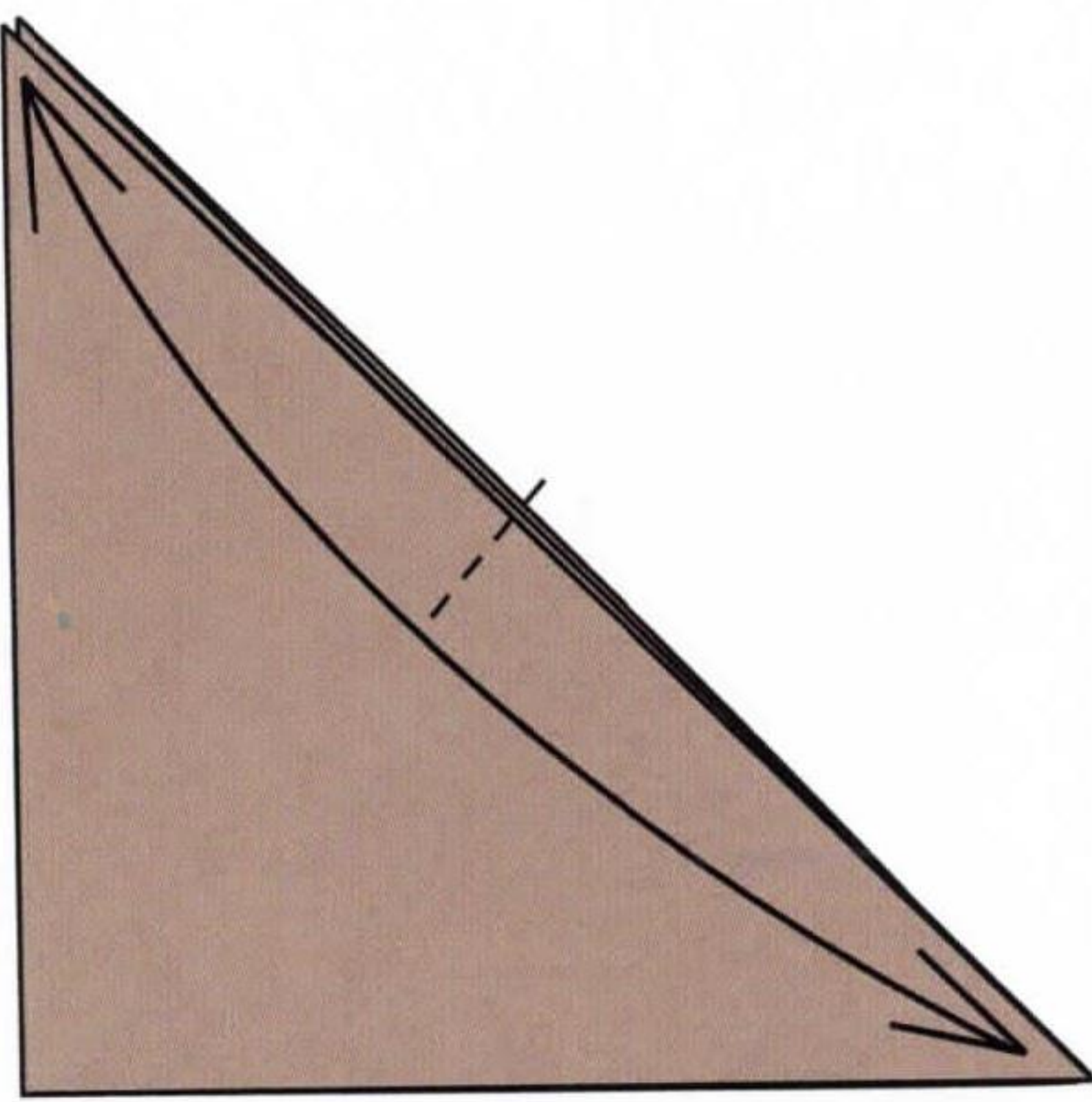
Use a 10-inch (25-cm) square for a life-size model, with a wingspan of about 10 inches. The paper should be highly sized: thin, crisp and hard. Papers made from flax, abaca or hemp fibers are my favorites, but several Asian papers are suitable after back-coating.



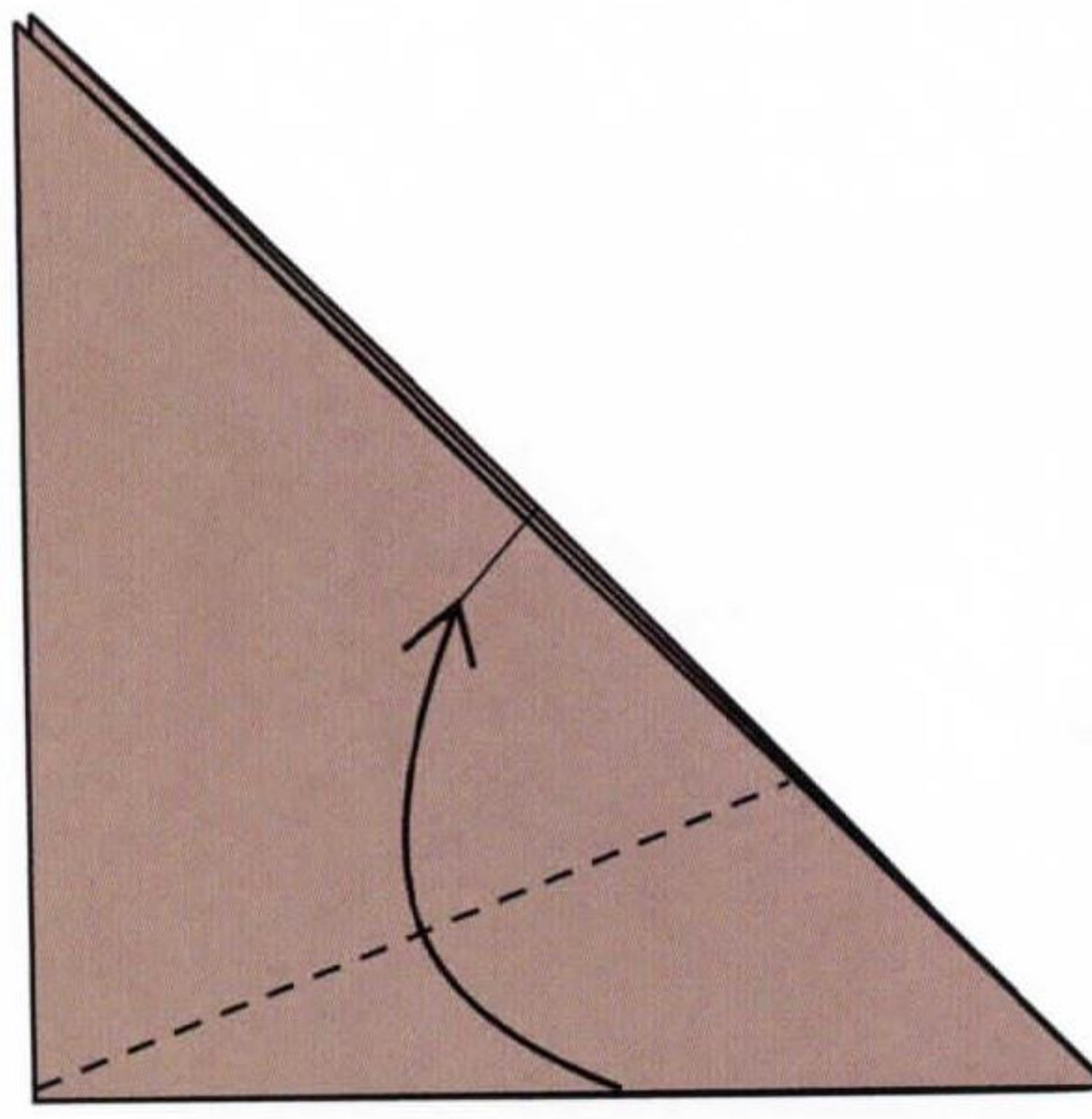
1. Fold in half diagonally.



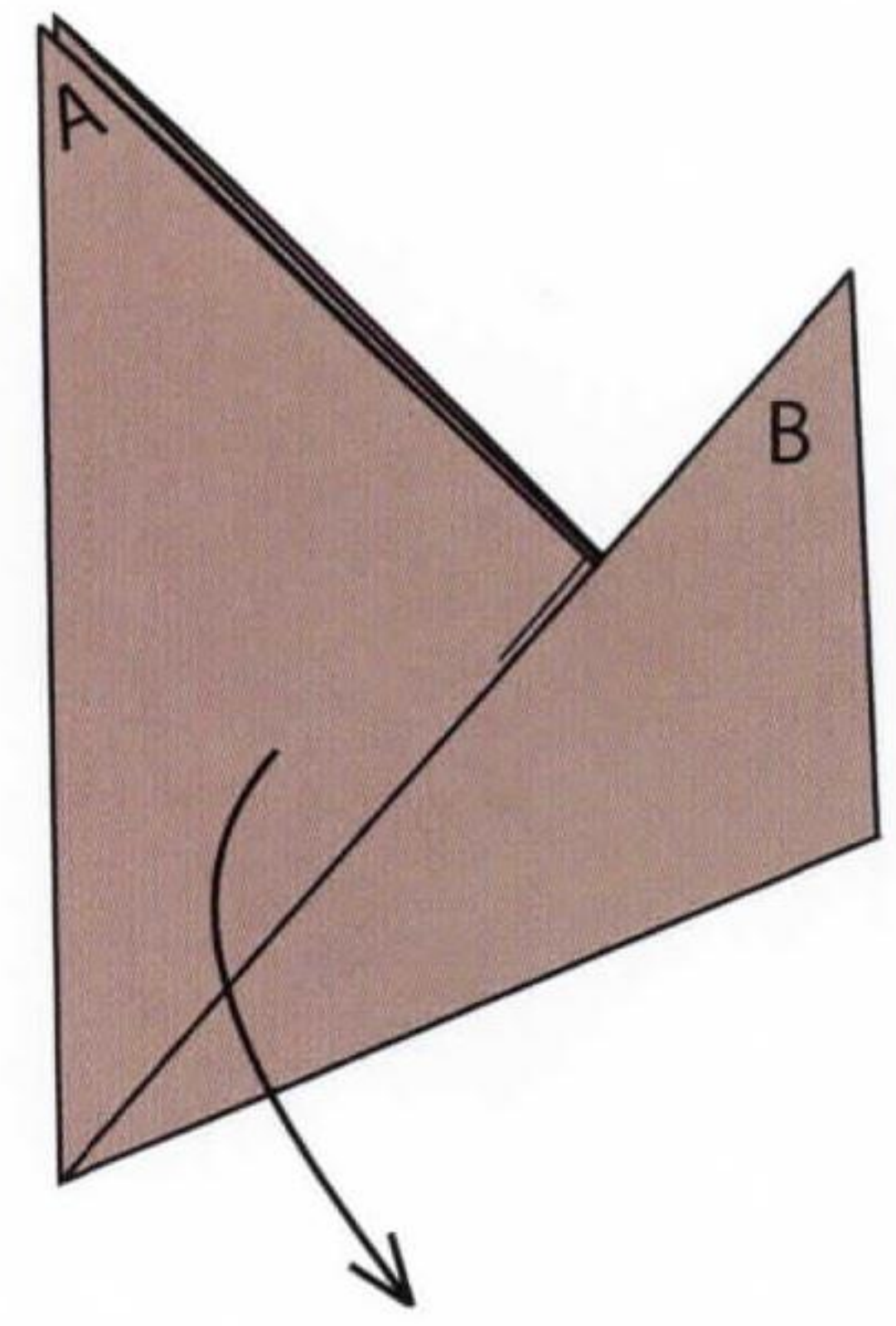
2. Fold in half again.



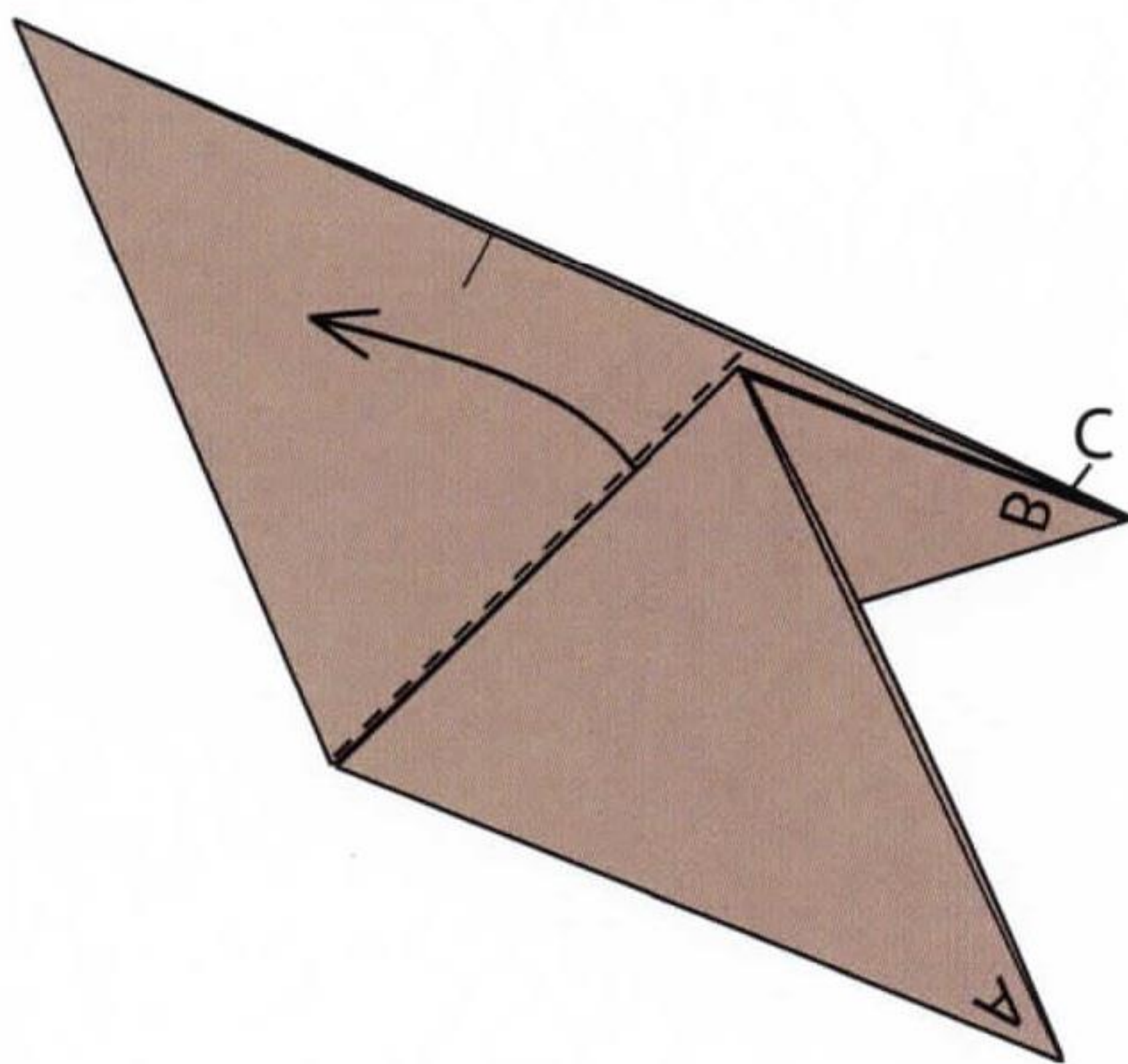
3. Mark the center of the longest side of the triangle with a pinch.



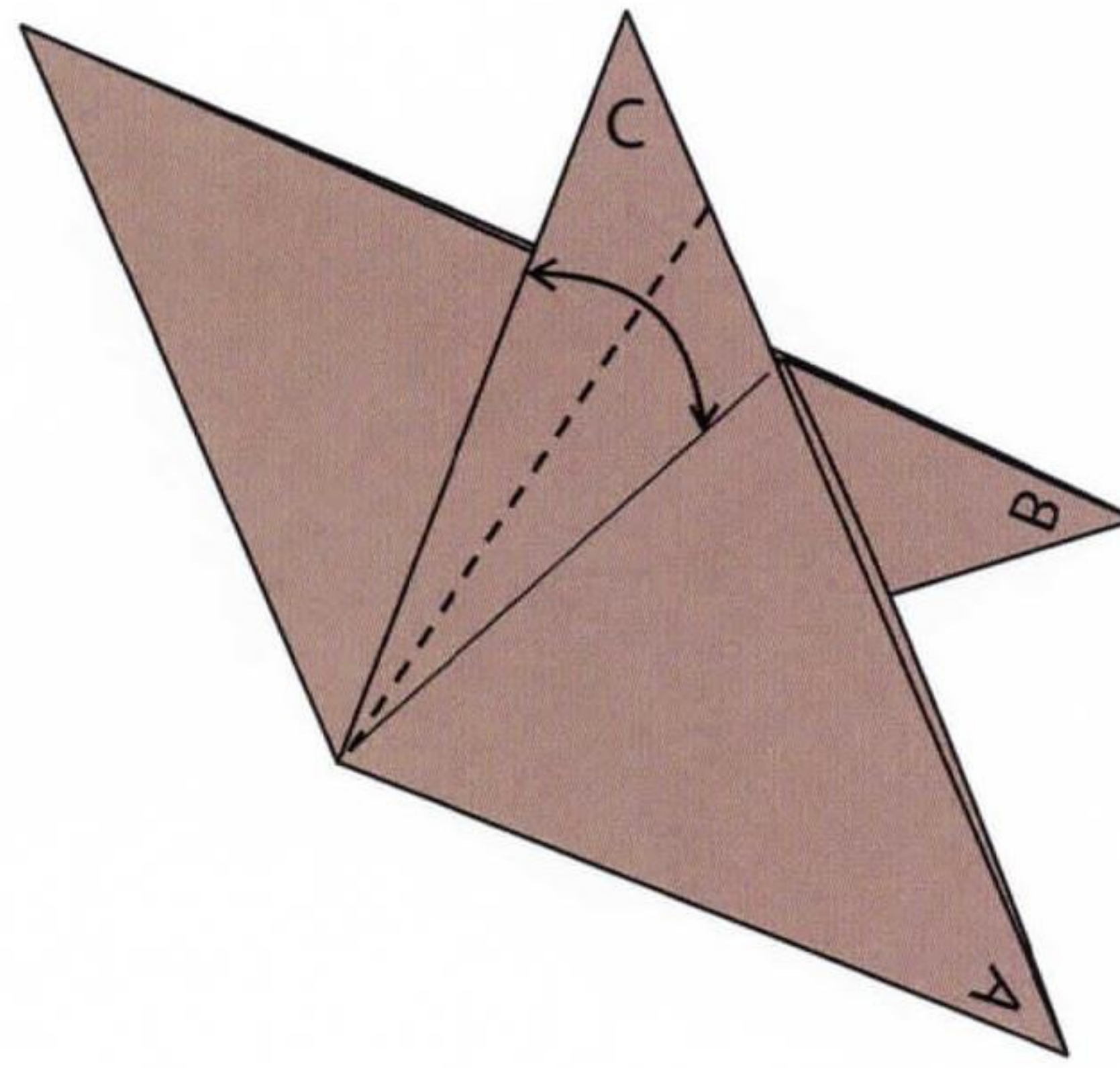
4. Fold the lower edge to the intersect mark and the right-angled corner.



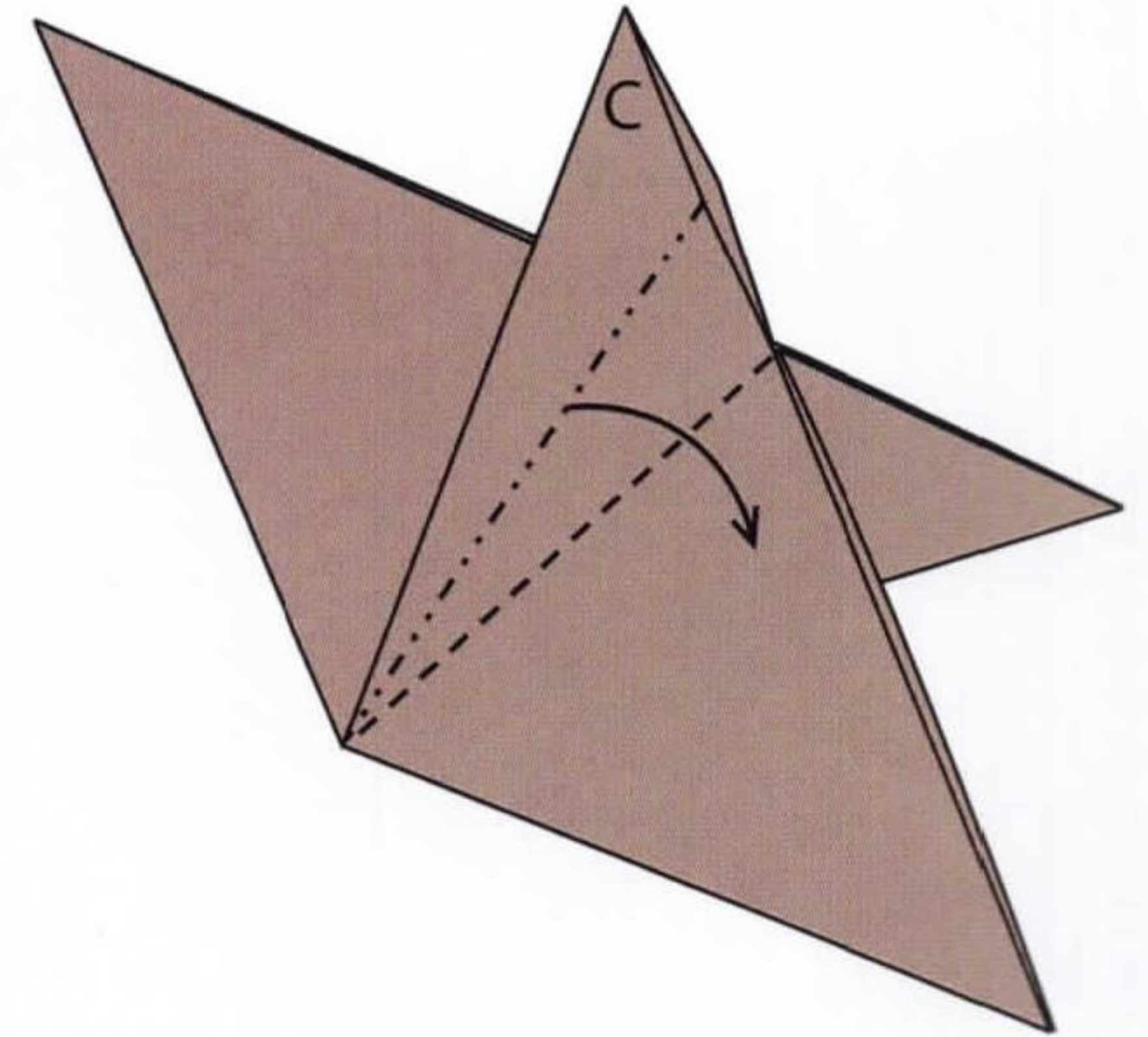
5. Open the top points, bringing front flap A and lower point B down.



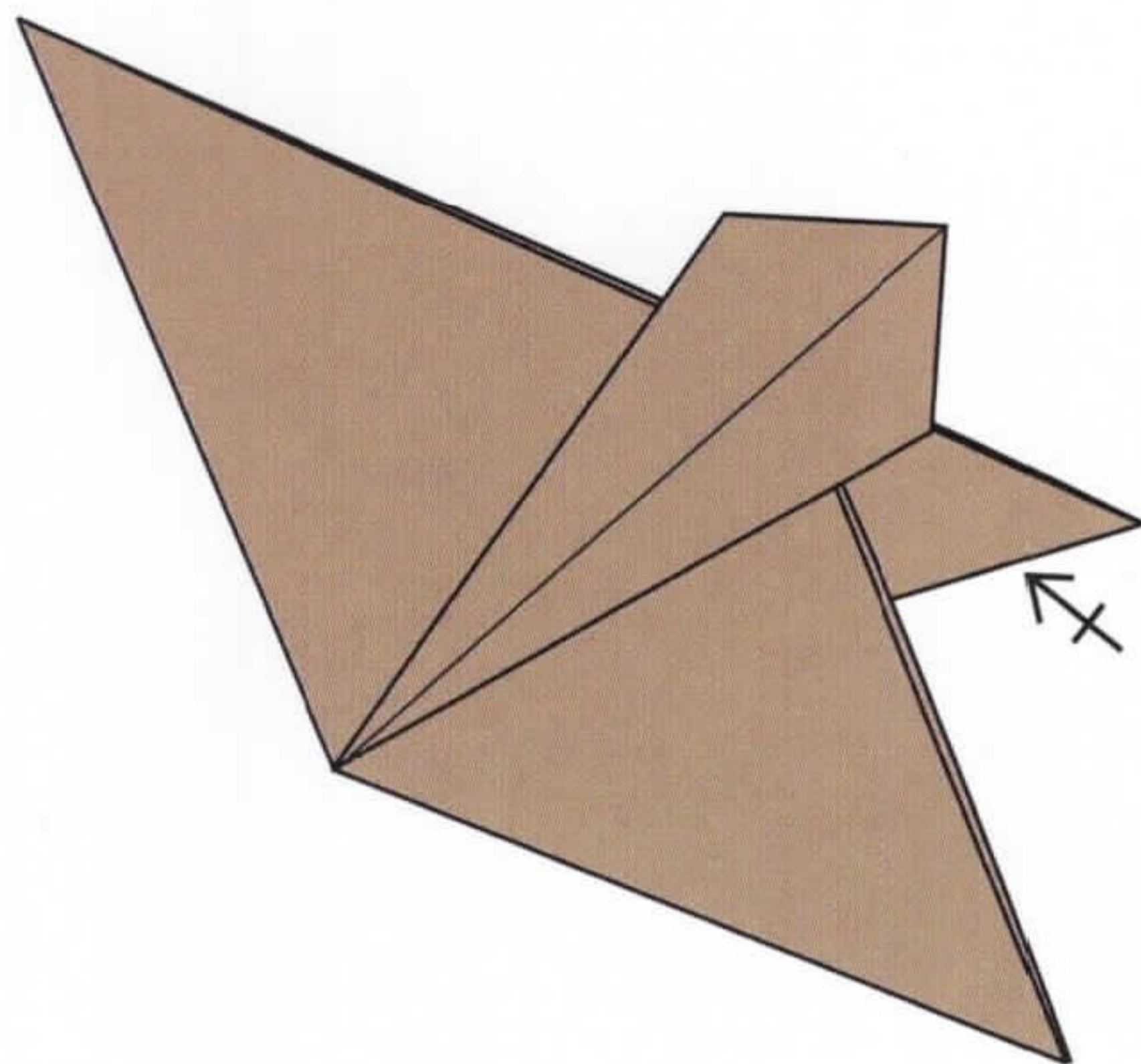
6. Separate points B and C, bringing C out to the left at the arrow.



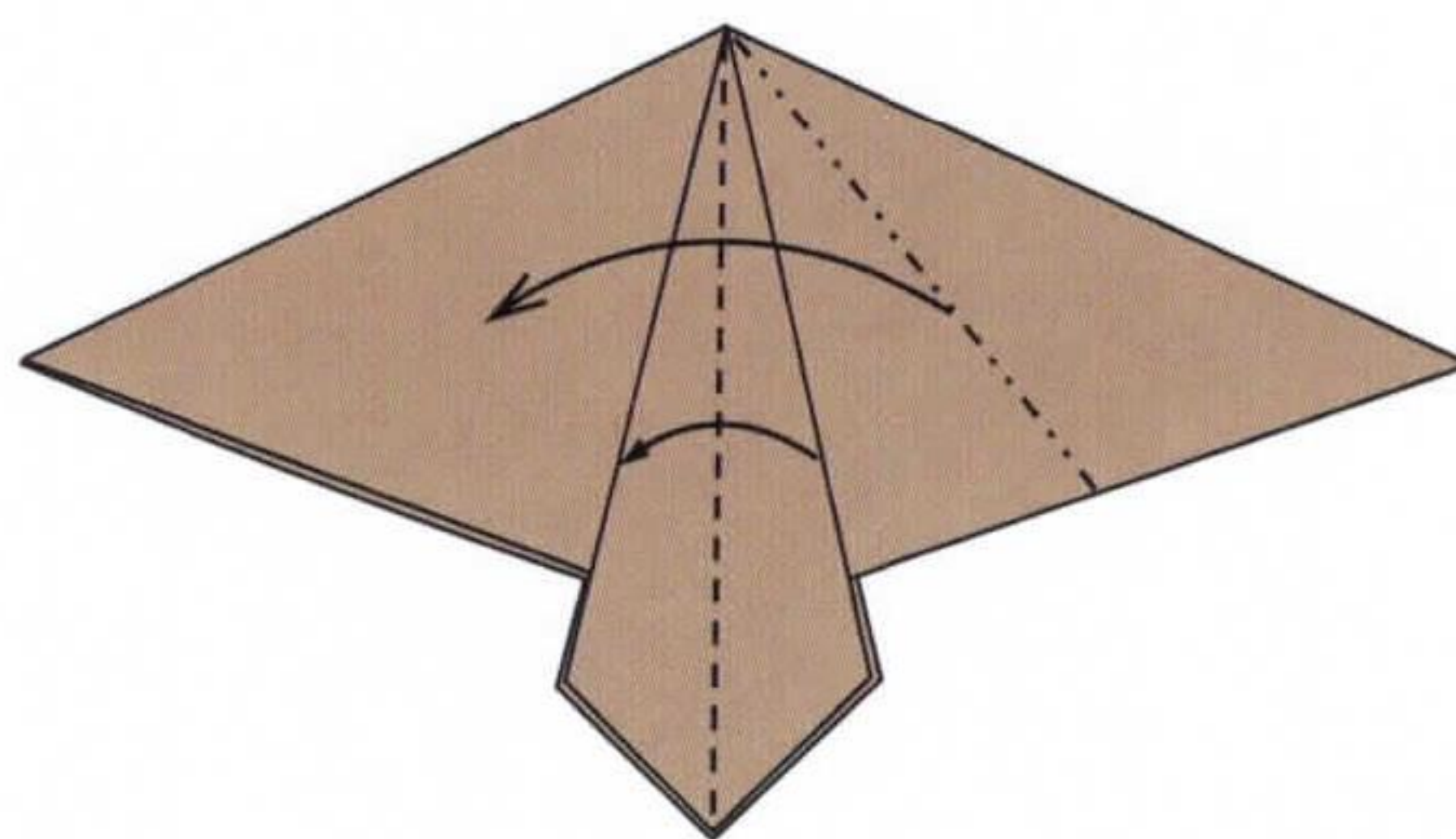
7. Bisect the angle with a valley fold to pre-crease flap C.



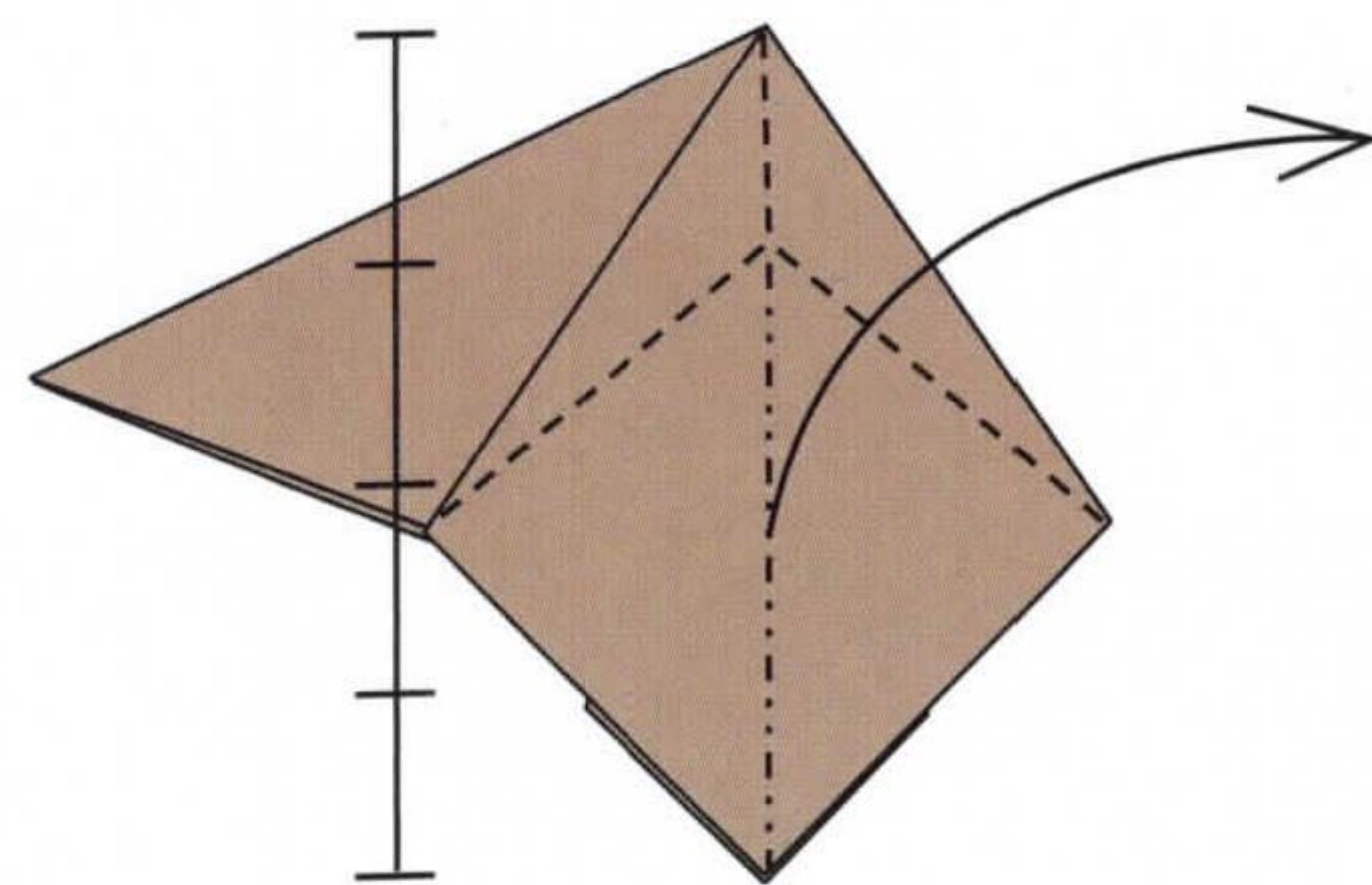
8. Squash C.



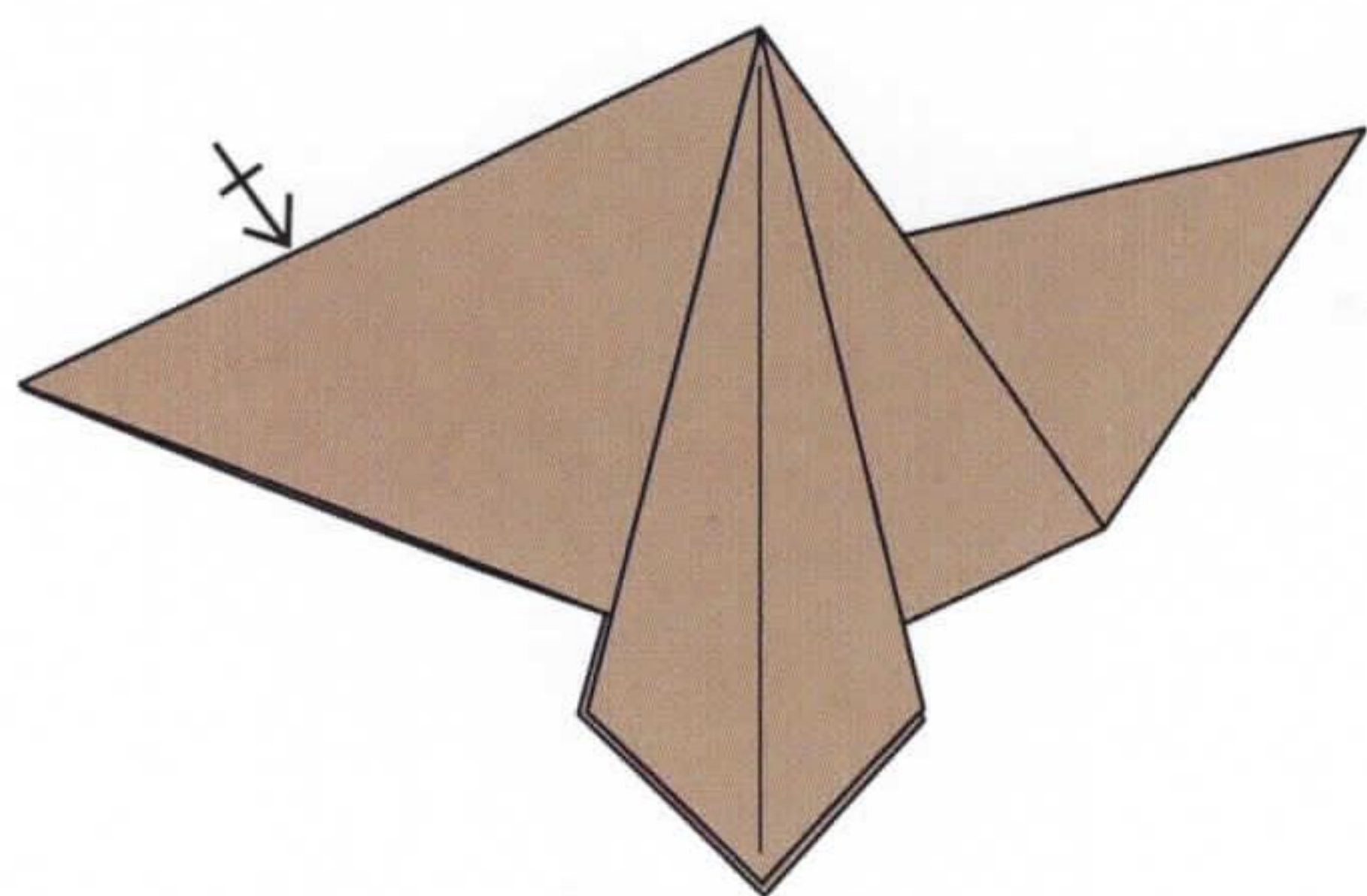
9. Repeat steps 7 and 8 on the other side.



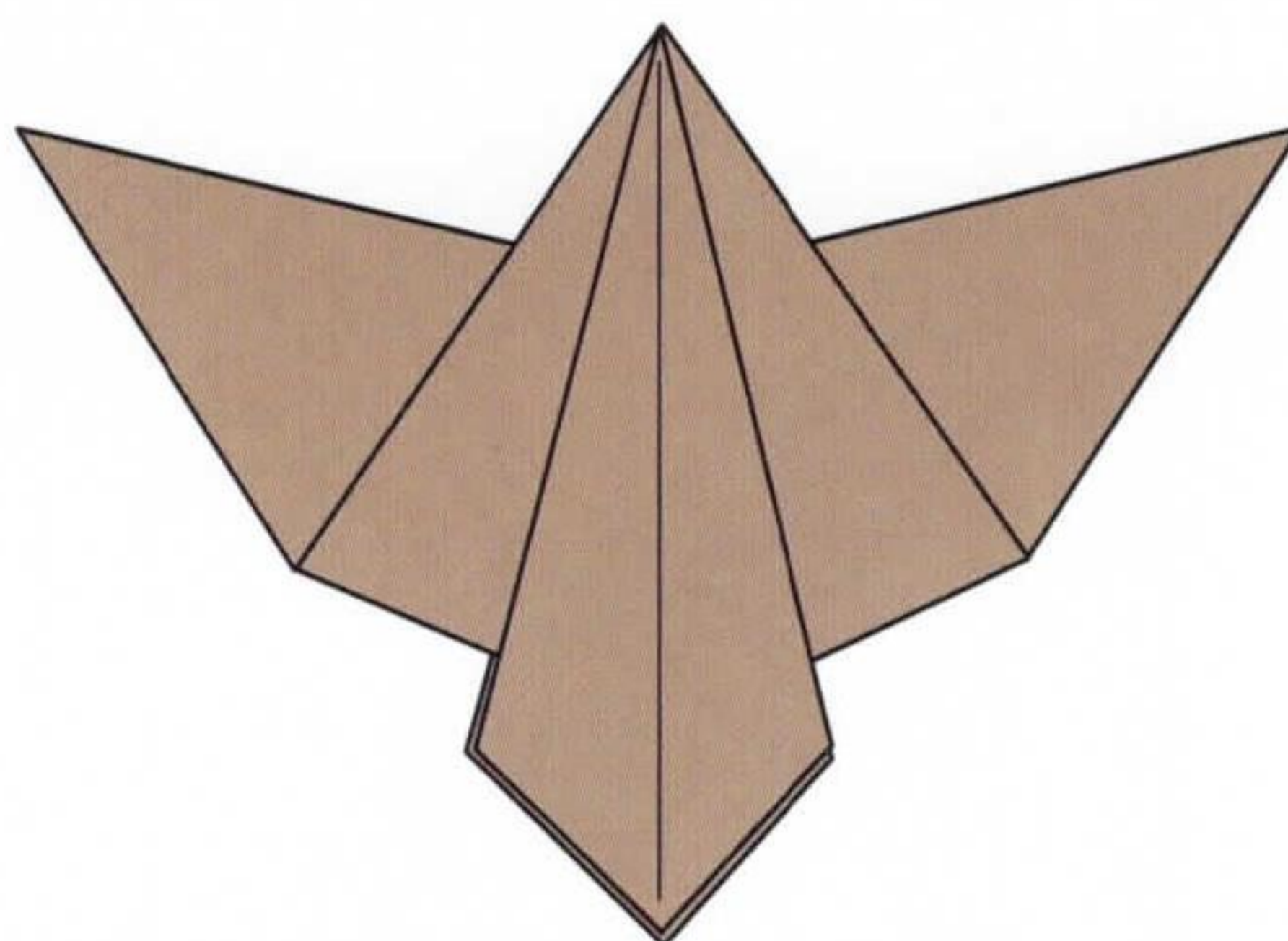
10. Fold the center flap to the left. Squash-fold the right flap.



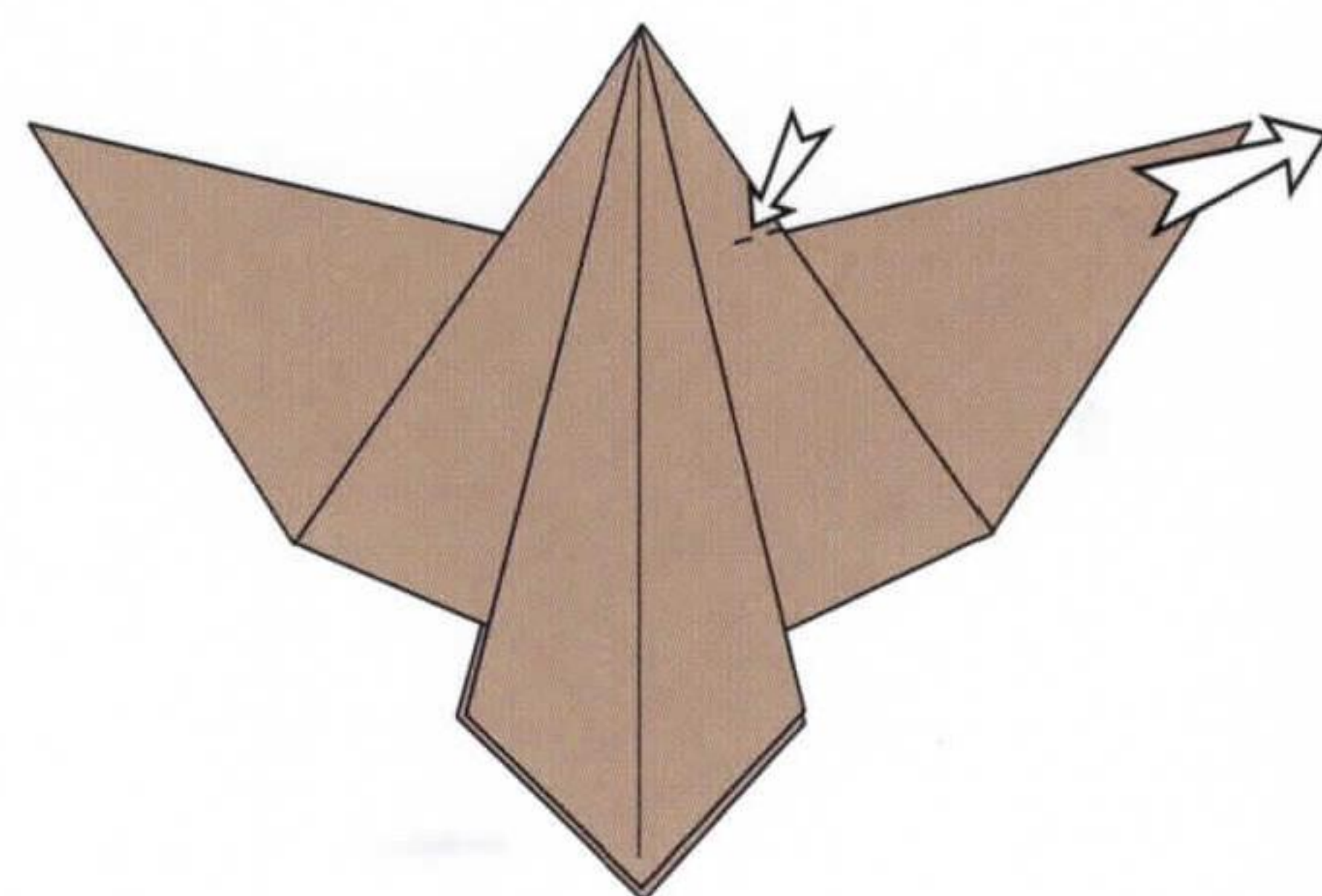
11. Mountain- and valley-fold the point out, terminating the origin of the radial valley at half the distance from the top of the model.



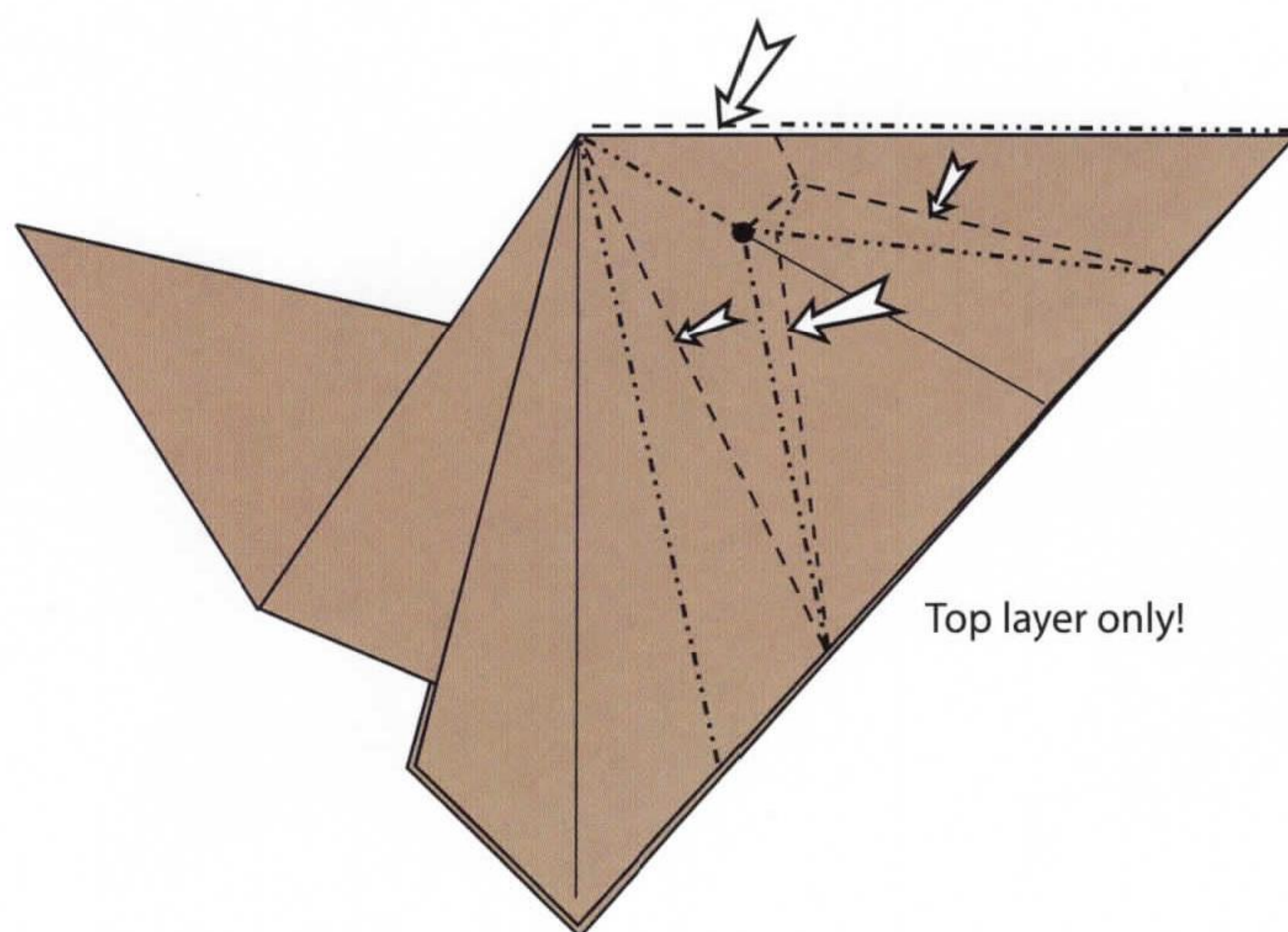
12. Repeat steps 10 and 11 on the other side.



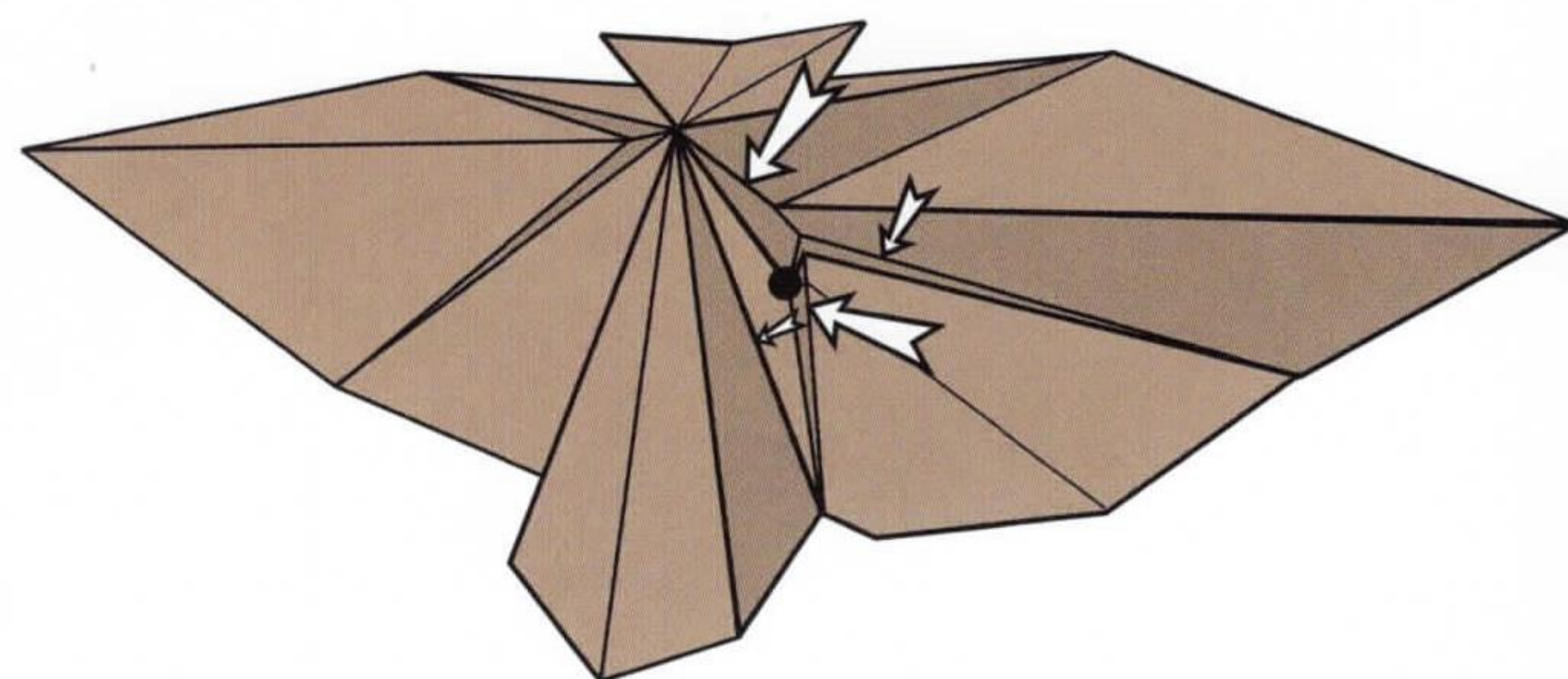
13. Top view at this stage. Move the center flap back to the right.



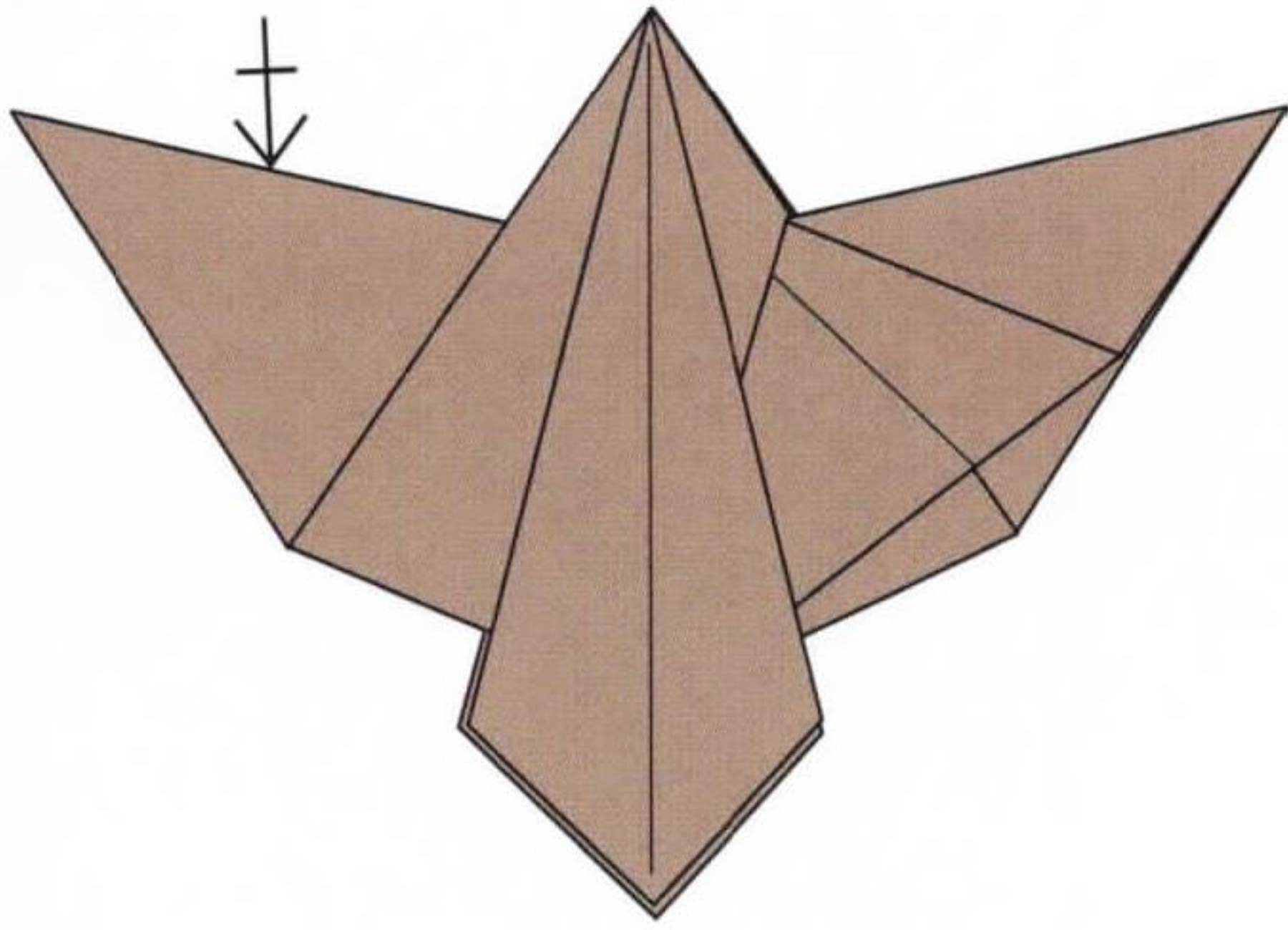
14. Pinch at the junction of the head and shoulder. Pull out the right wing.



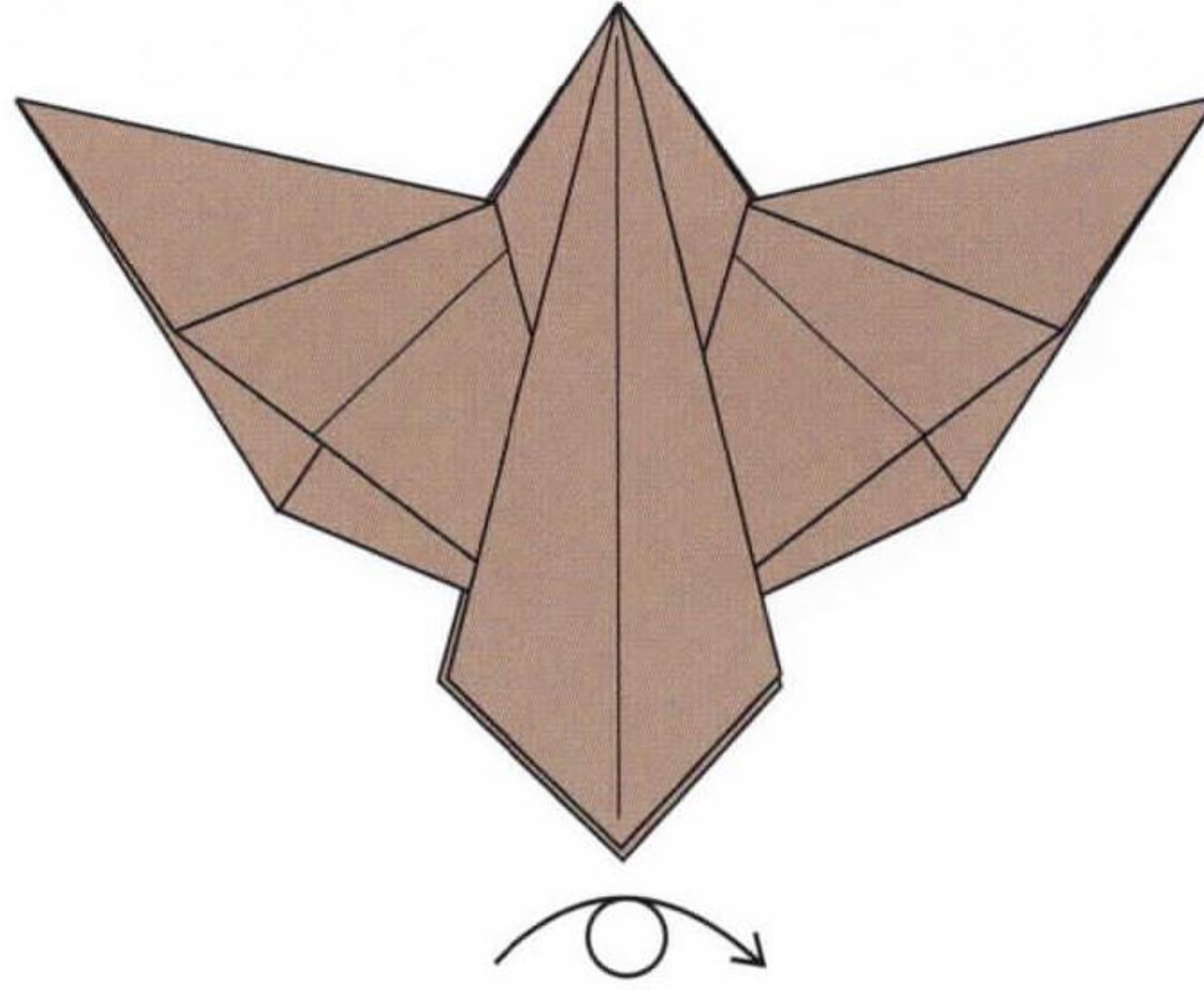
15. Pre-crease the top layer only to create the upper wing surface. The black dot represents the pinch mark made in step 14.



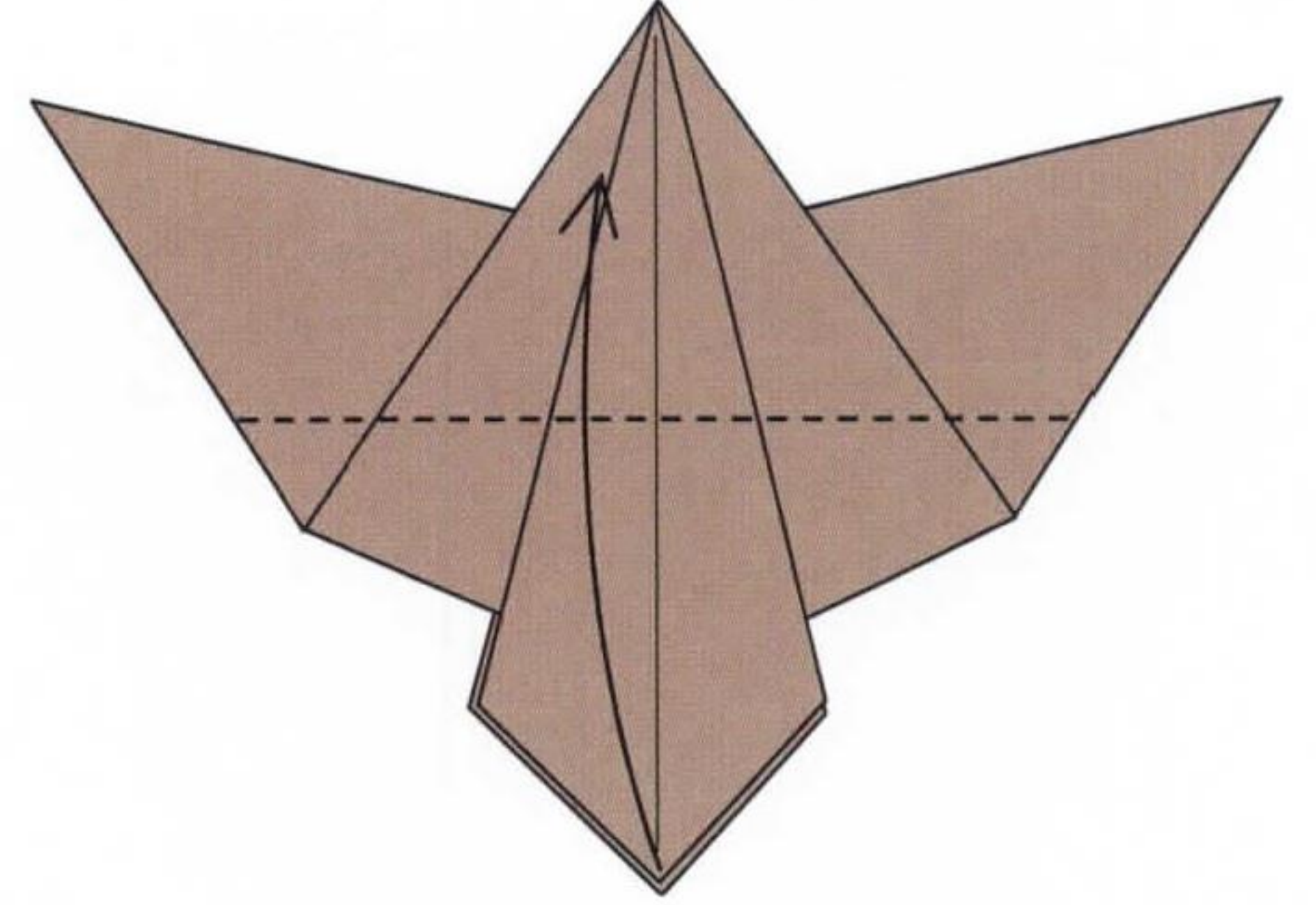
16. Pinch and tuck as indicated to shape the upper wing.



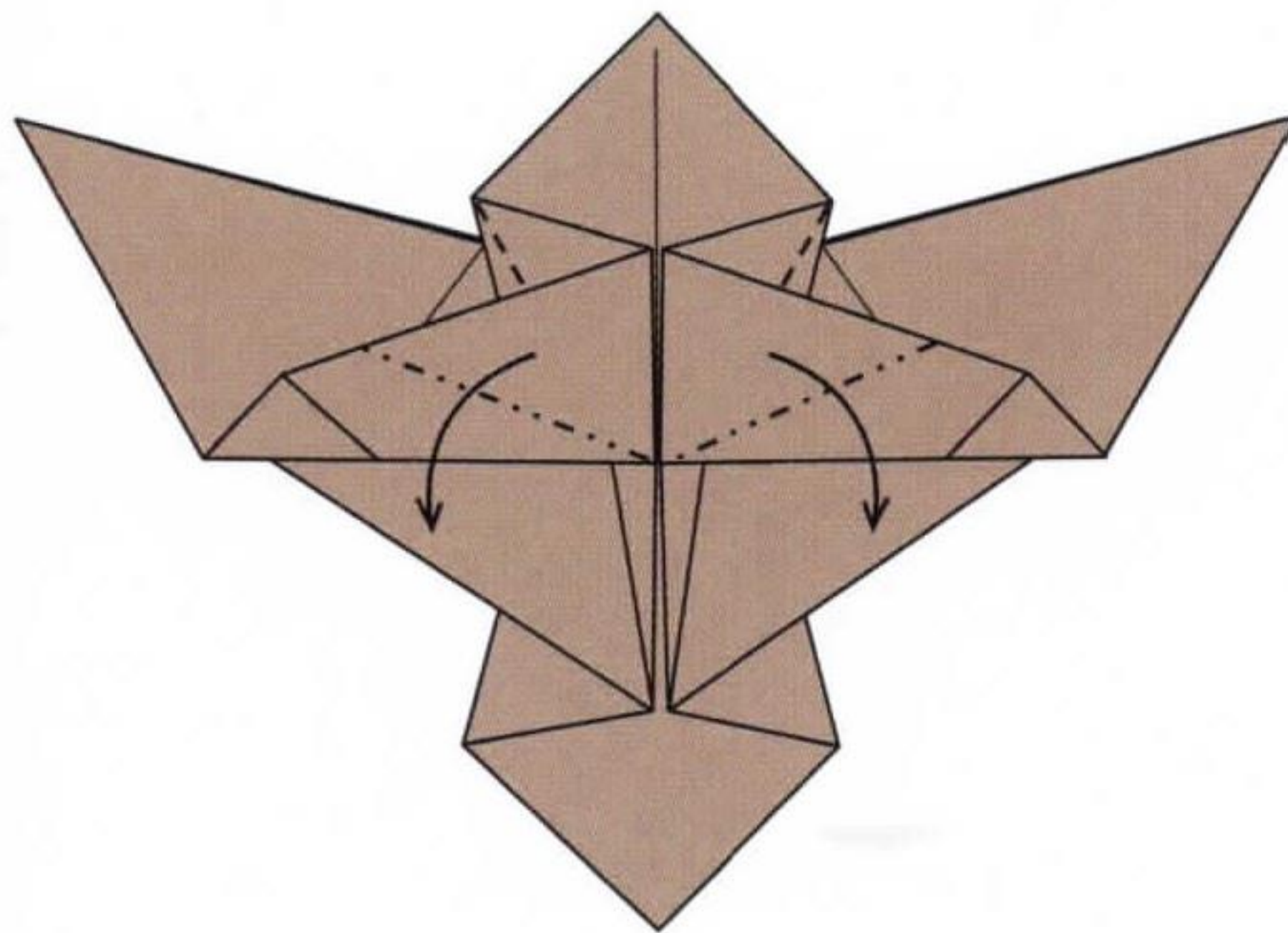
17. Repeat folding on the other wing in the same way.



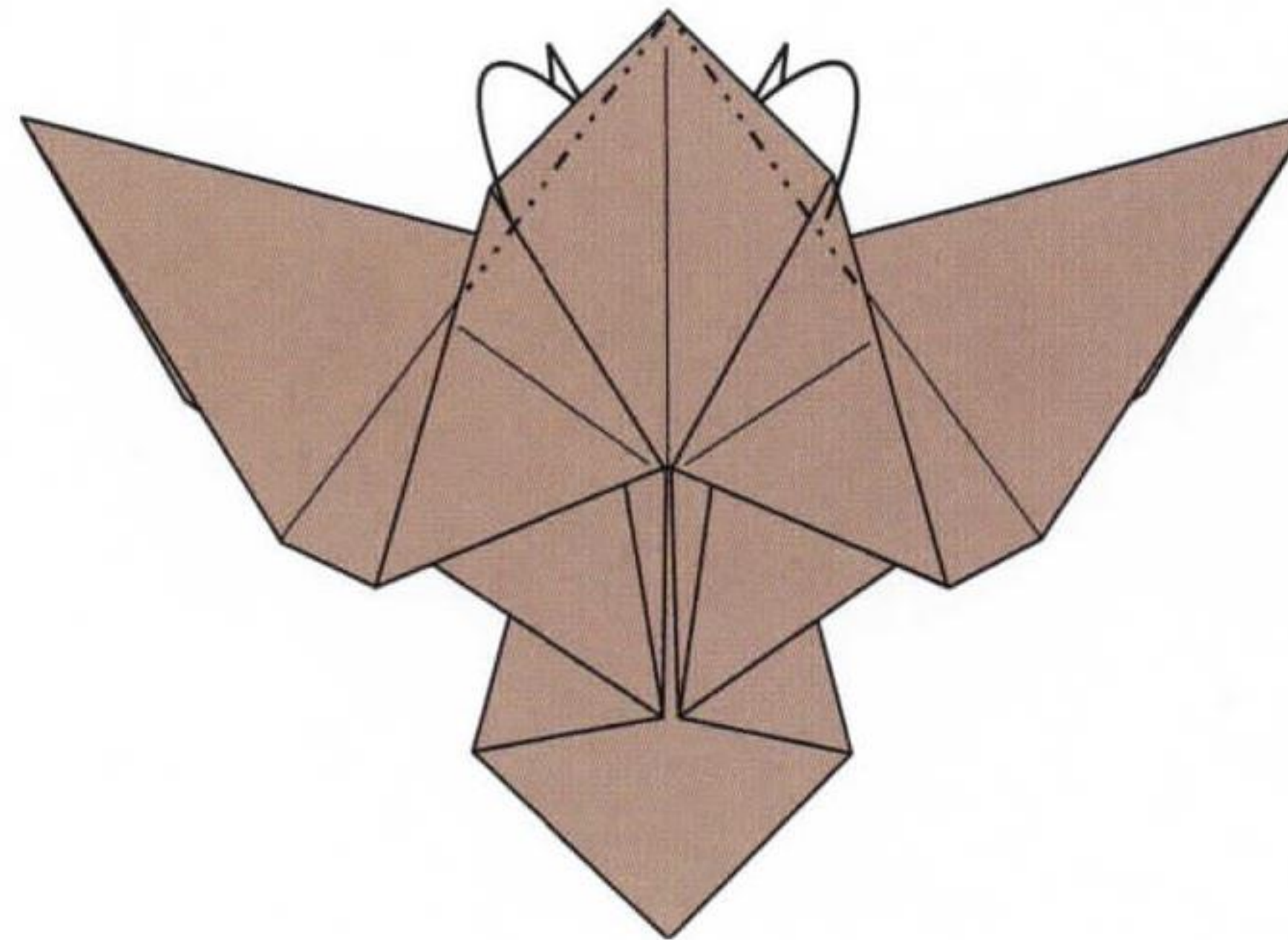
18. Your paper should look like this.
Turn over, left to right.



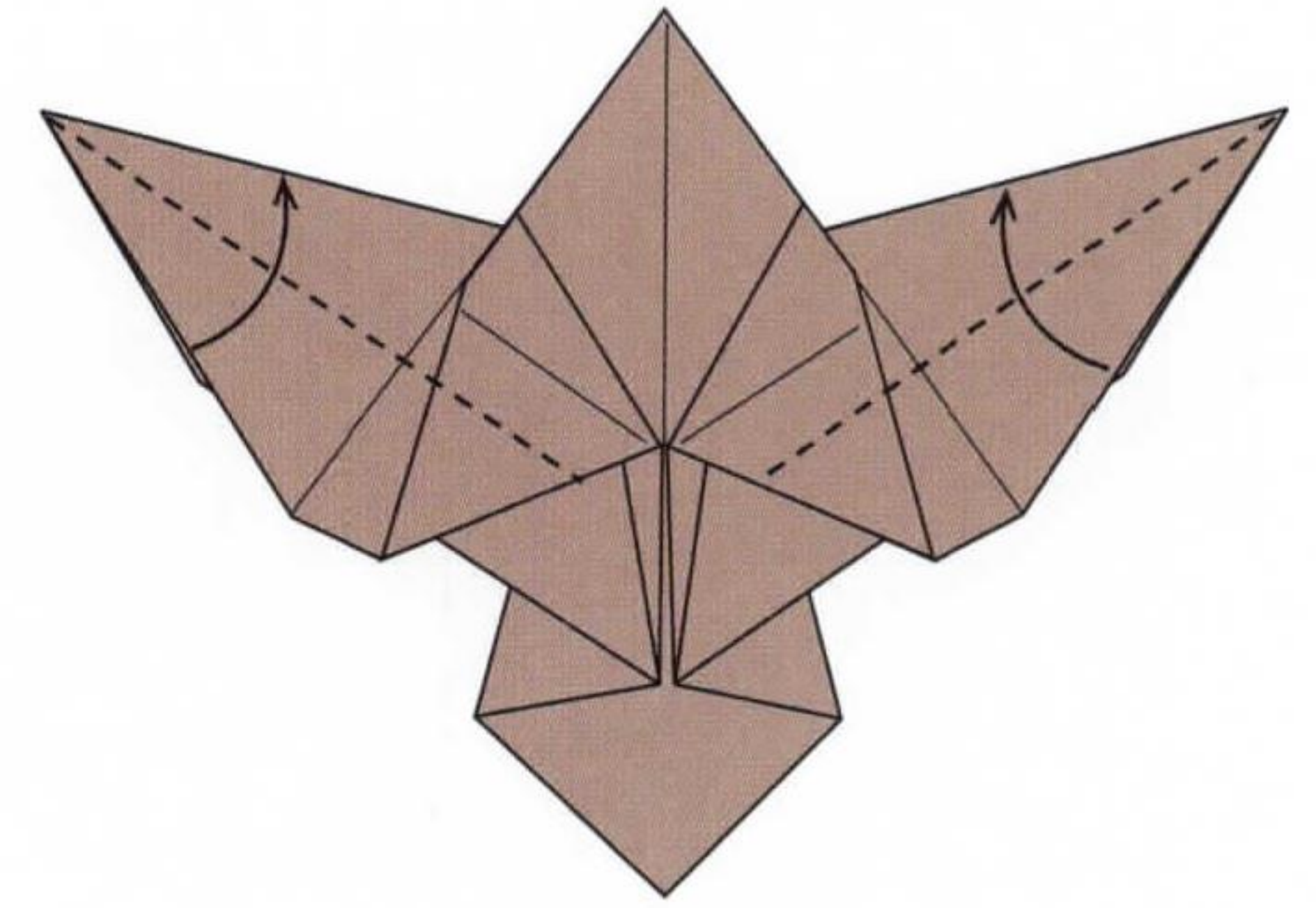
19. Fold the bottom corner to the top.



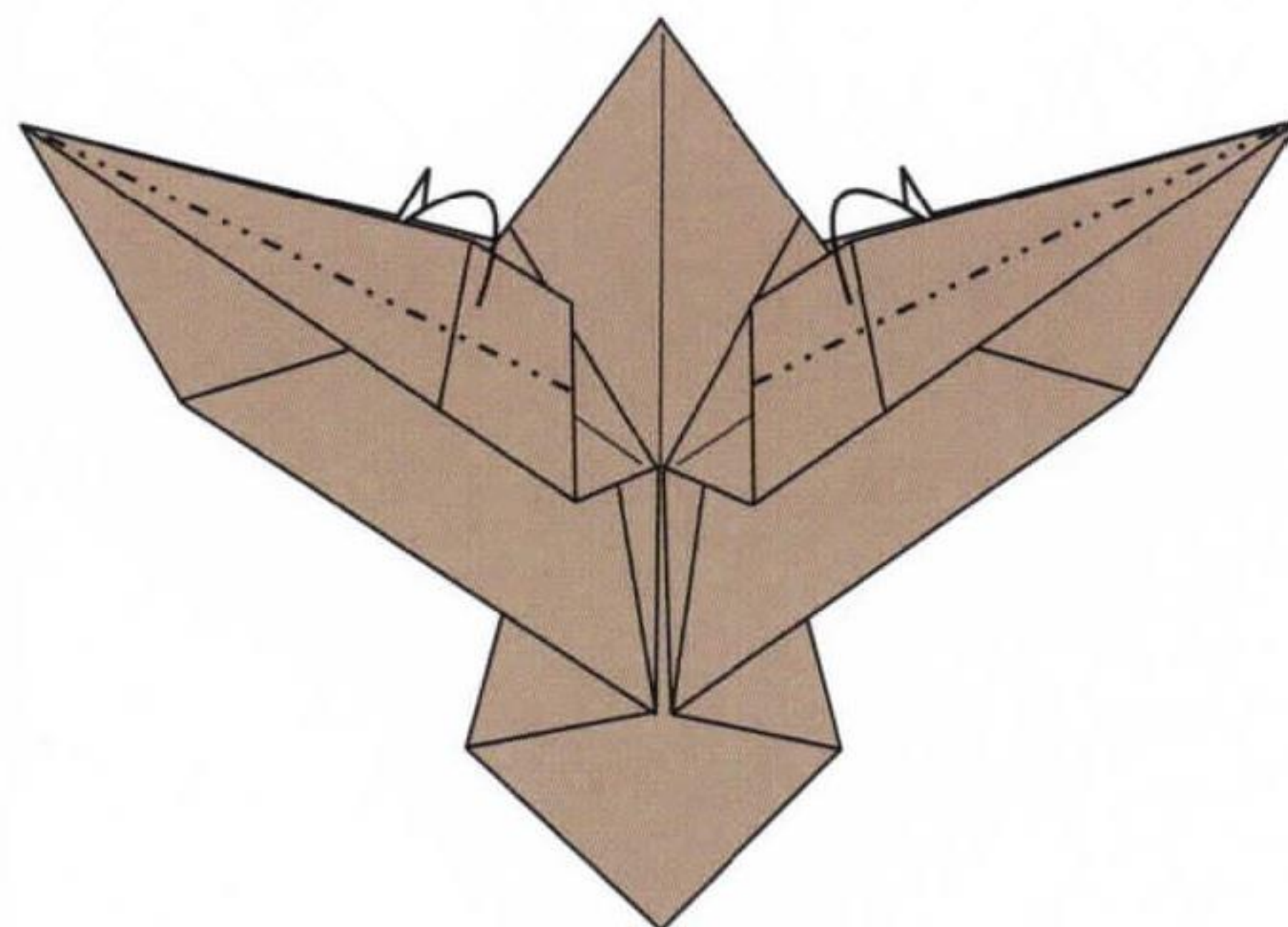
20. Bring the inner layers back down, pulling layers out as shown.



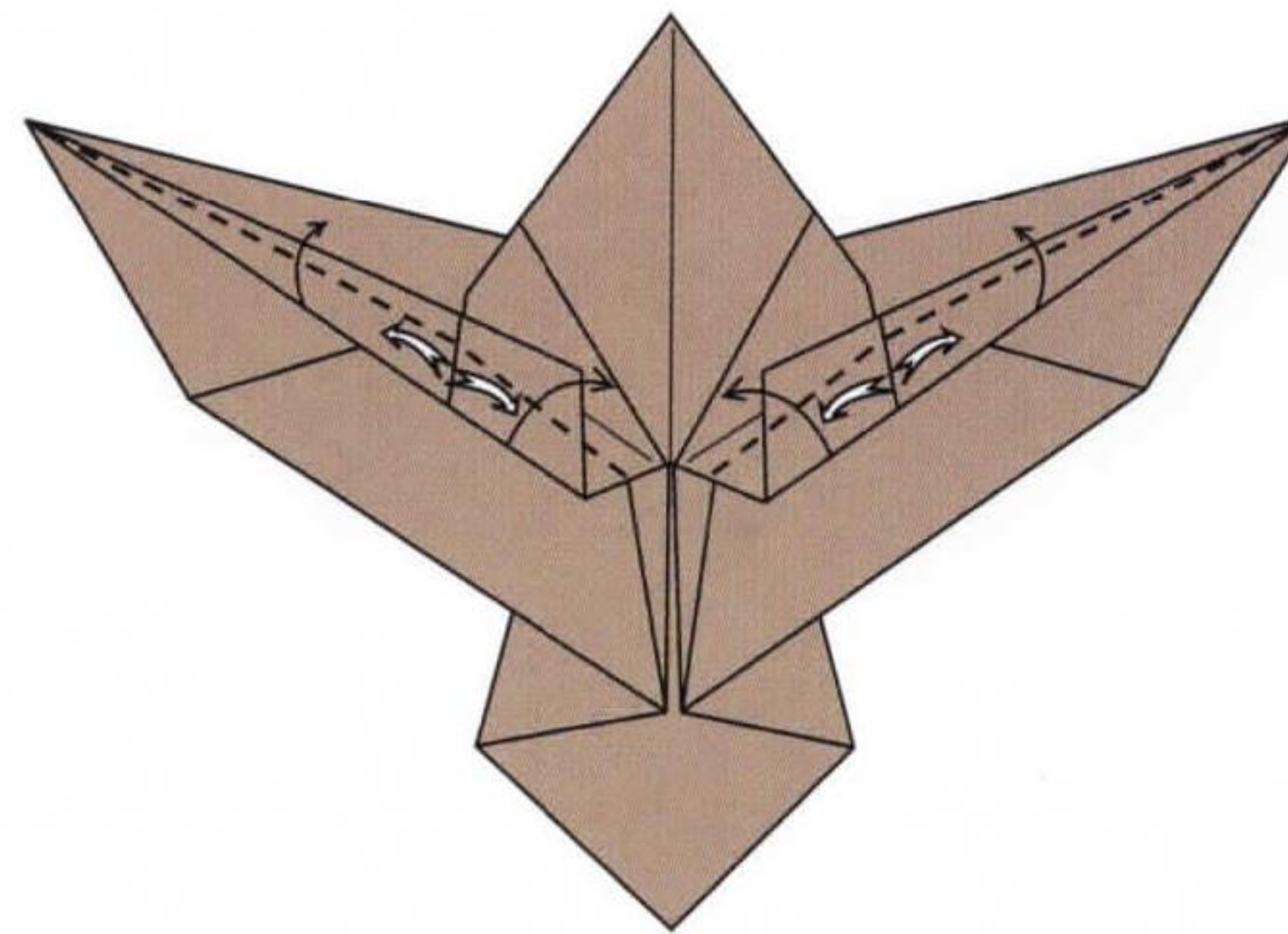
21. Narrow the top, matching the profile of the back corner.



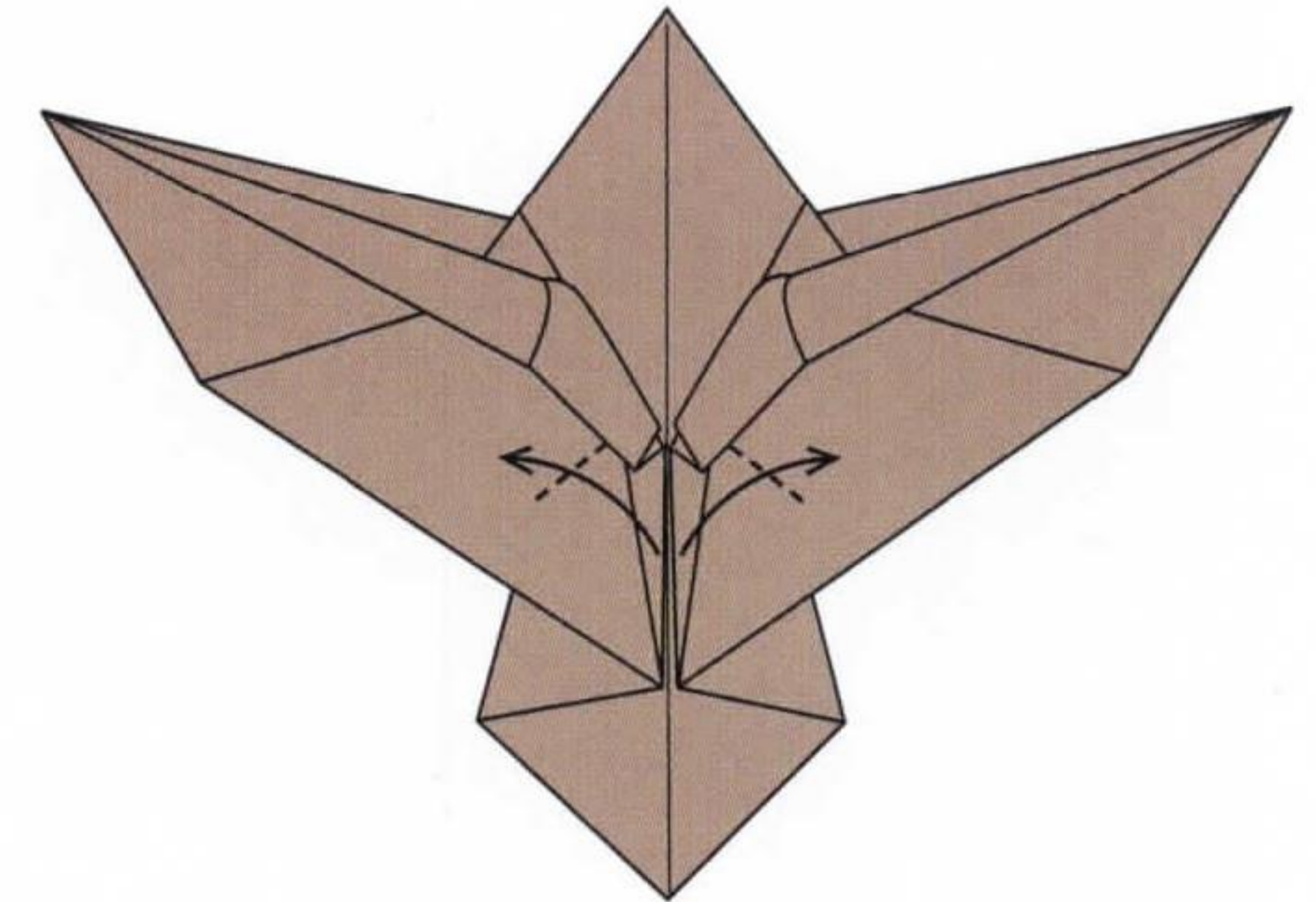
22. Fold the bottom edge to the top, upper layer of each wing.



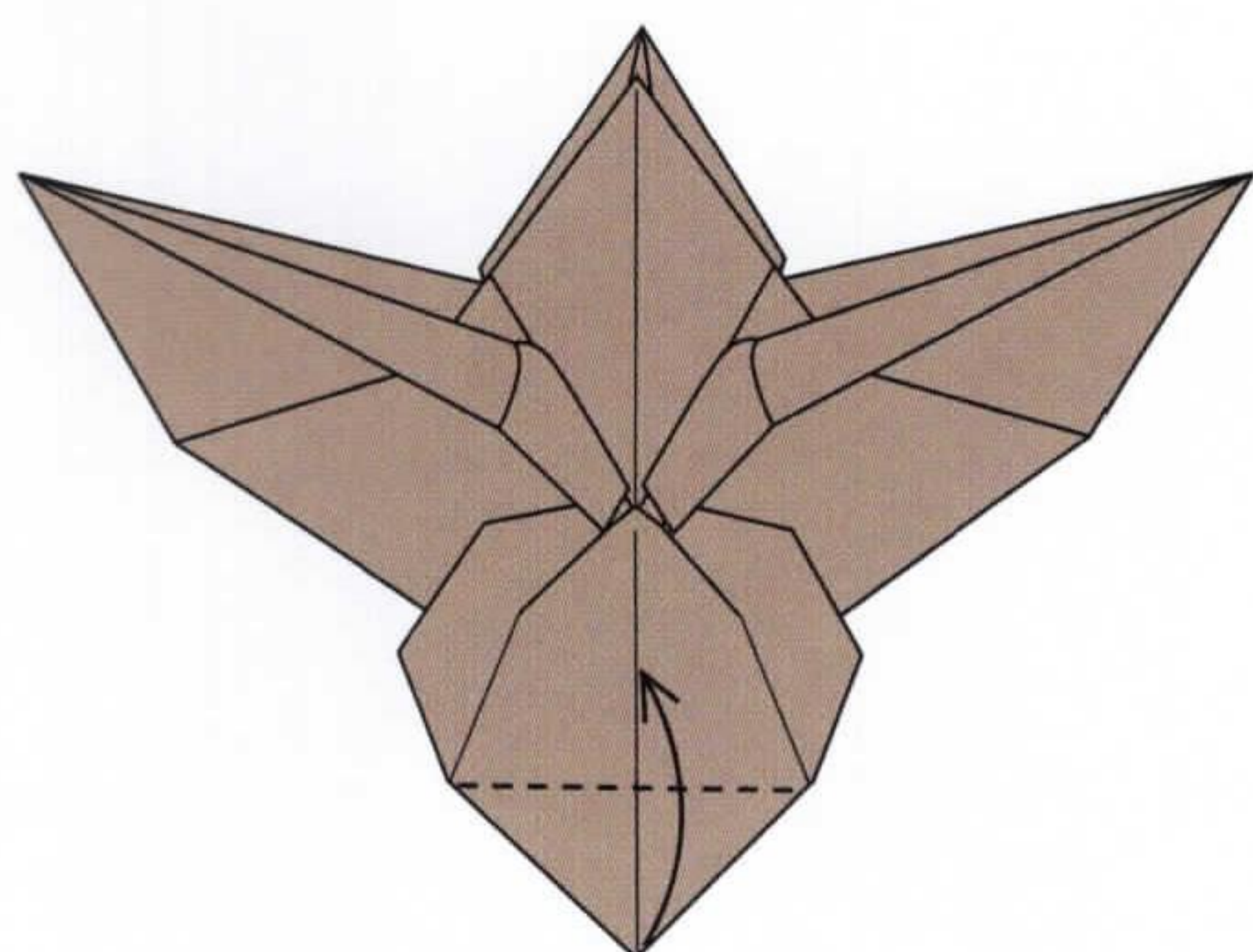
23. Mountain-fold the leading edges behind.



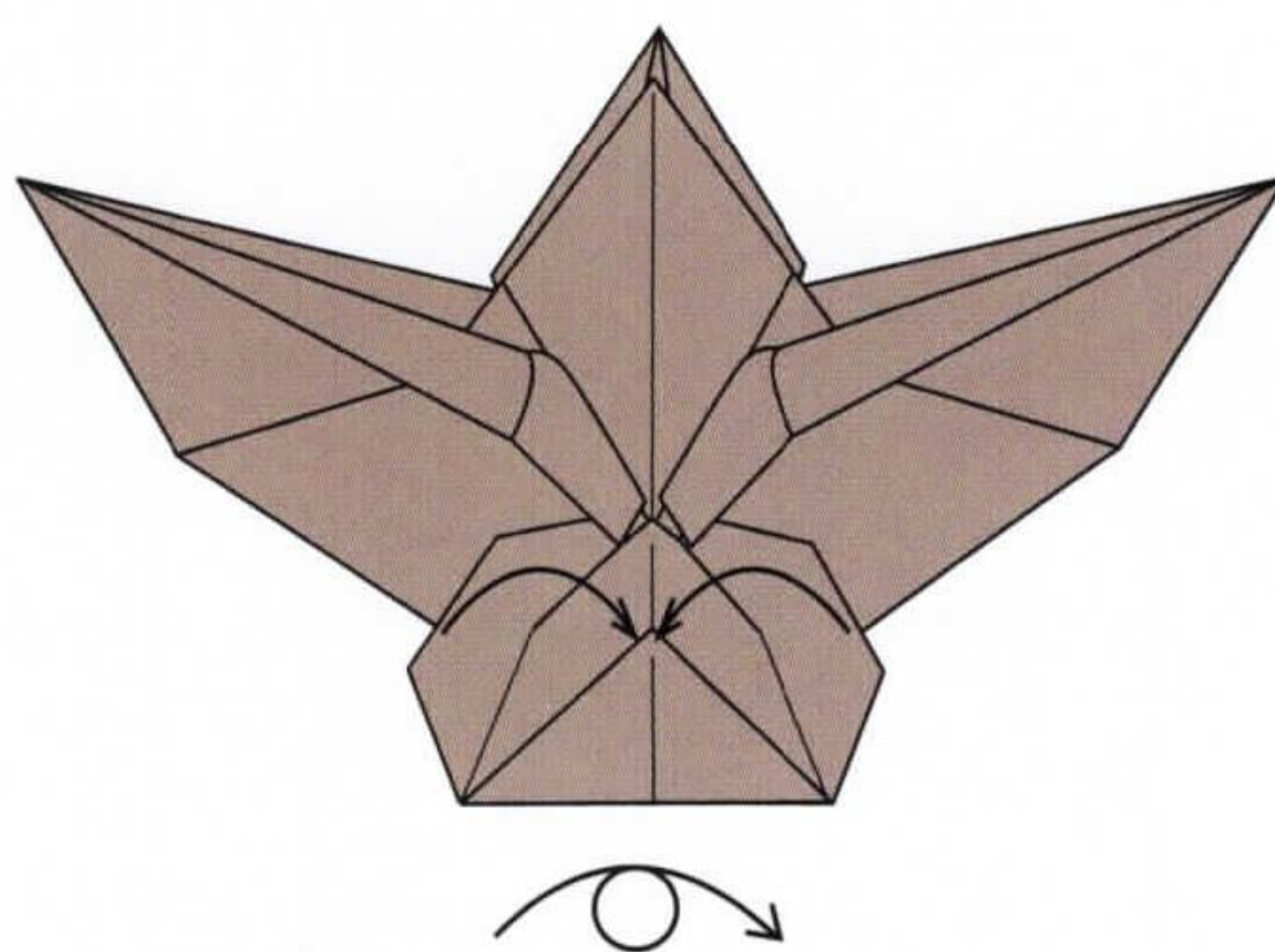
24. Form the "bones" of the arms by valley-folding as shown. Pull to stretch where indicated by the white arrows.



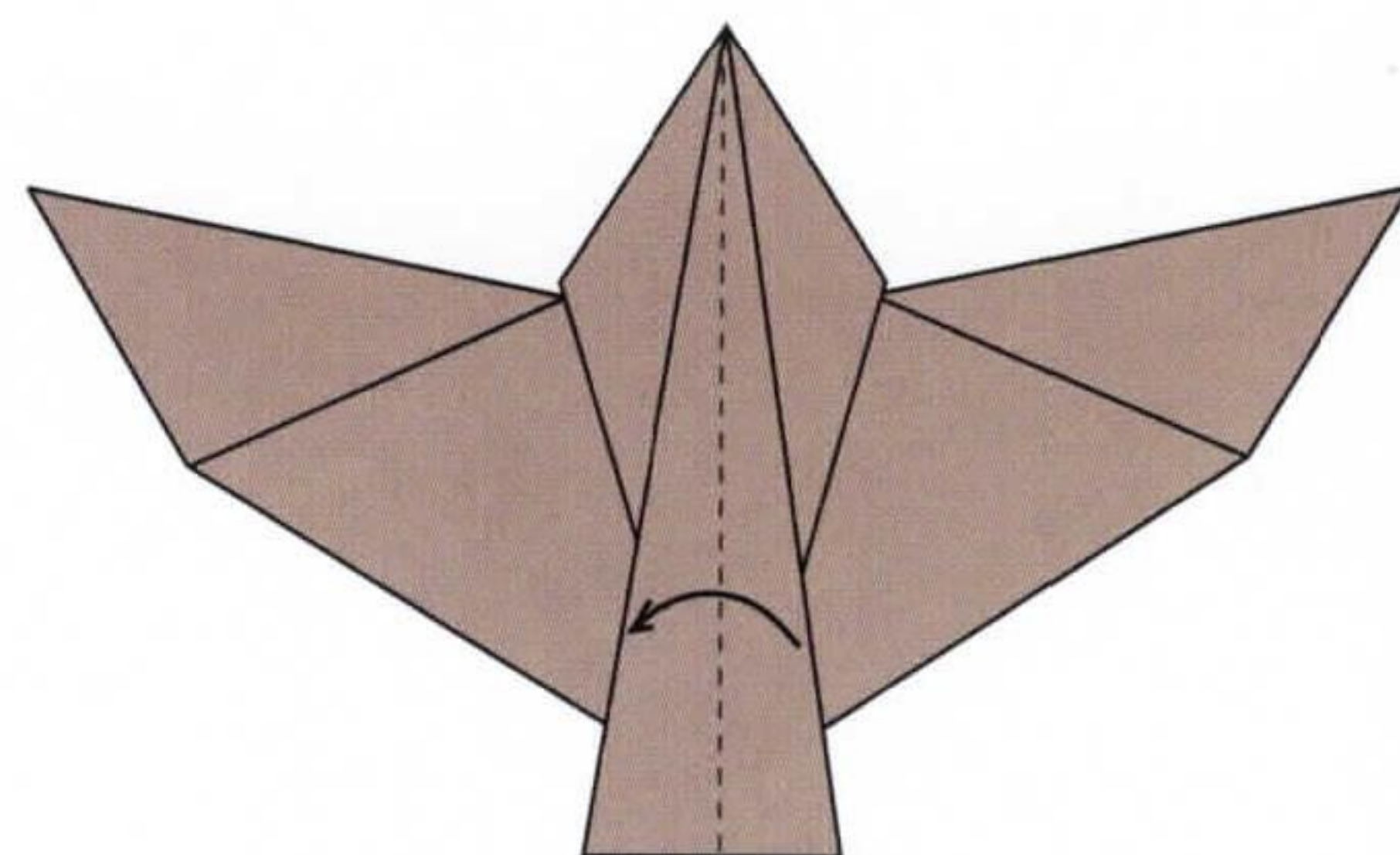
25. Open the layers out with valley pinches.



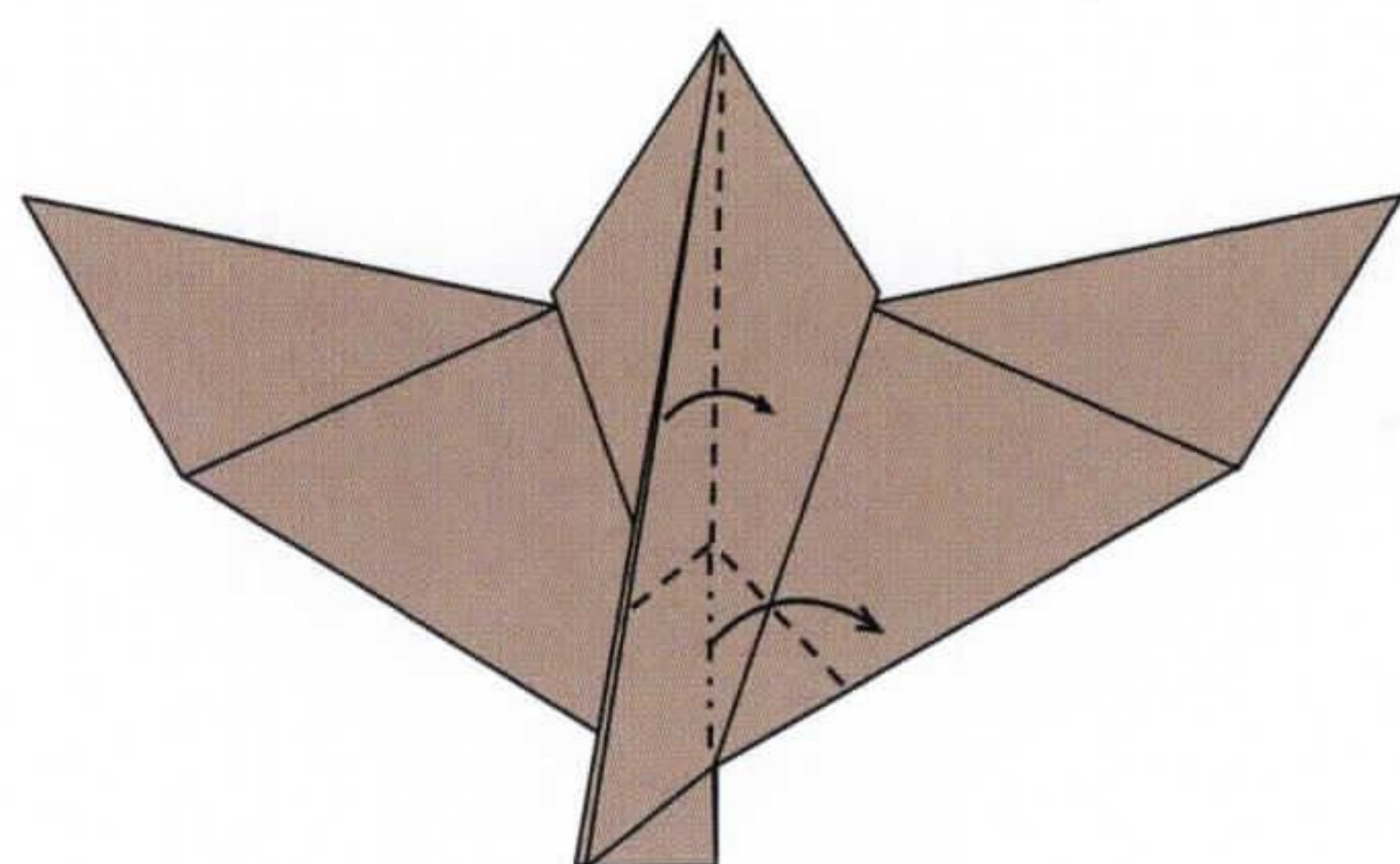
26. Fold the tail point upward.



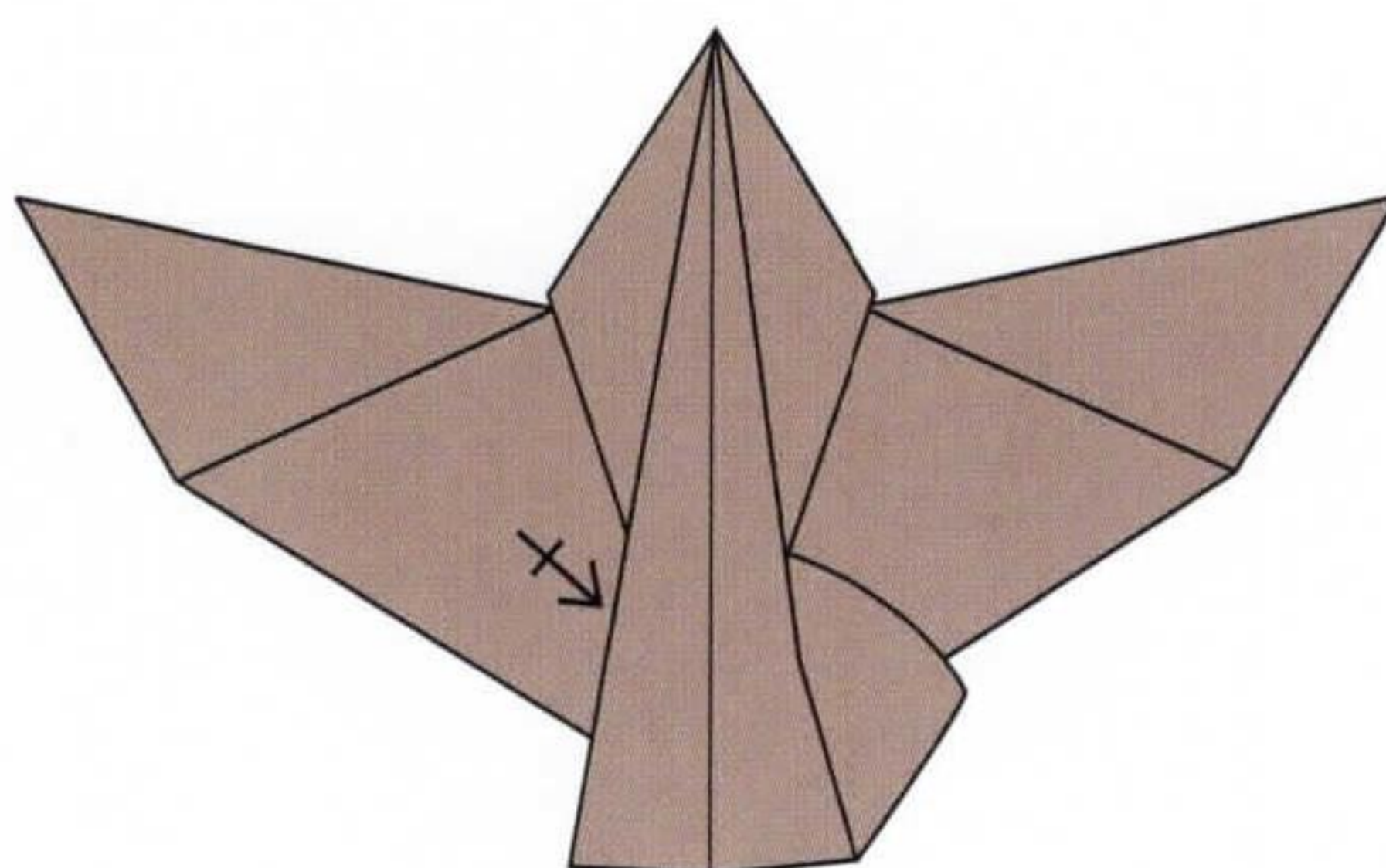
27. Bring the flaps inward. Turn the model over, left to right.



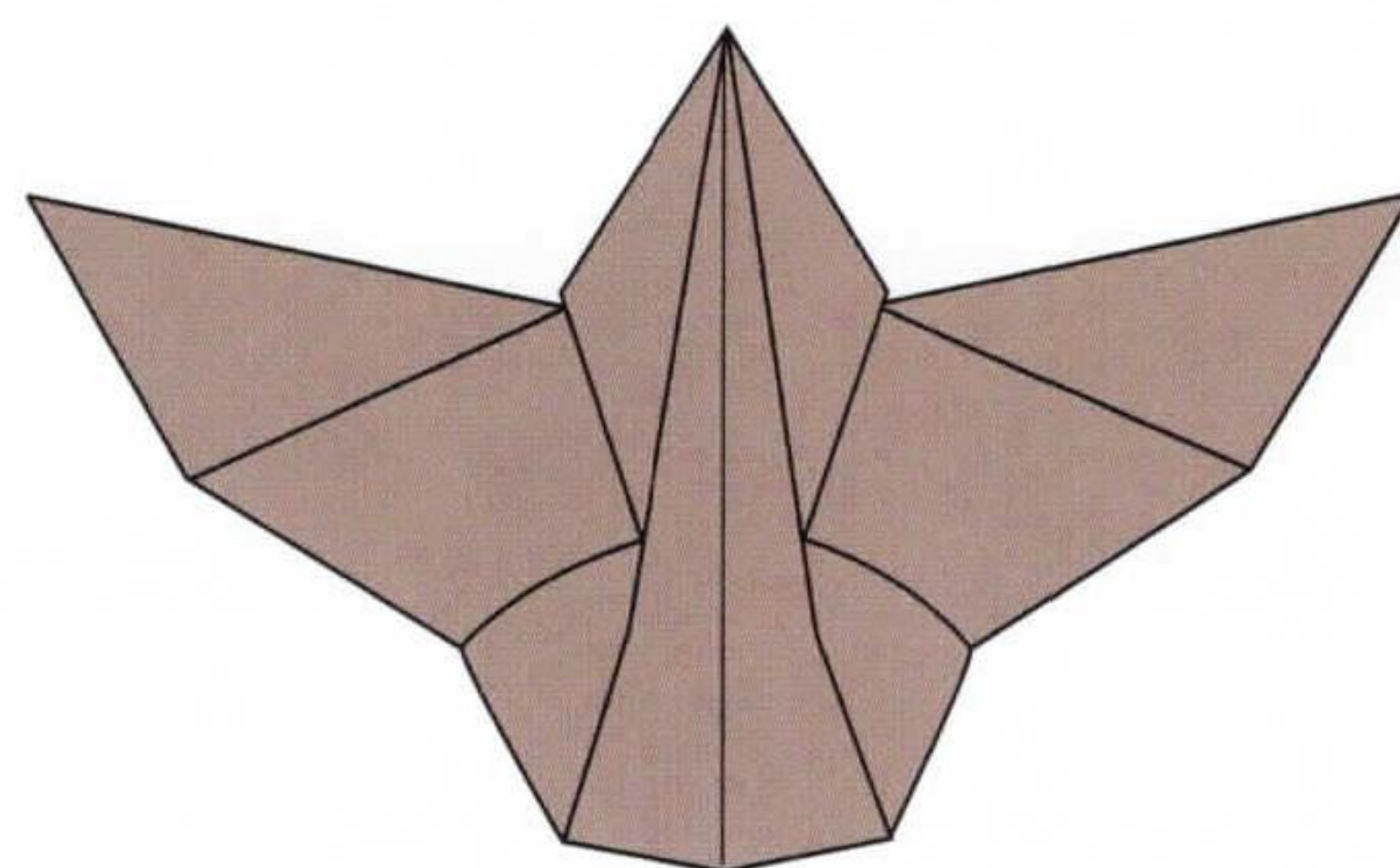
28. Valley-fold the center triangle in half, right to left.



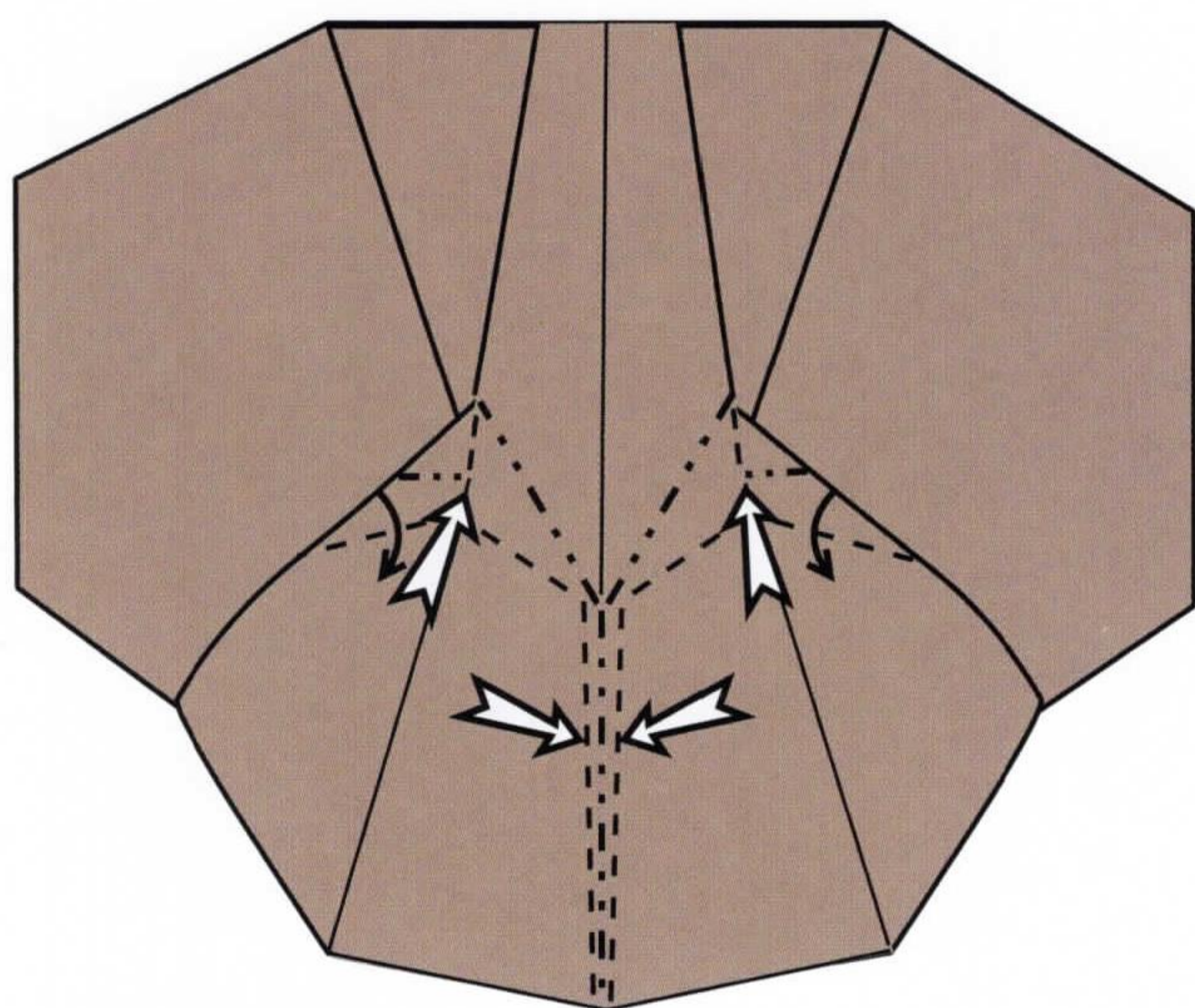
29. Pull out the lower right side with an inside-reverse fold at the lower section.



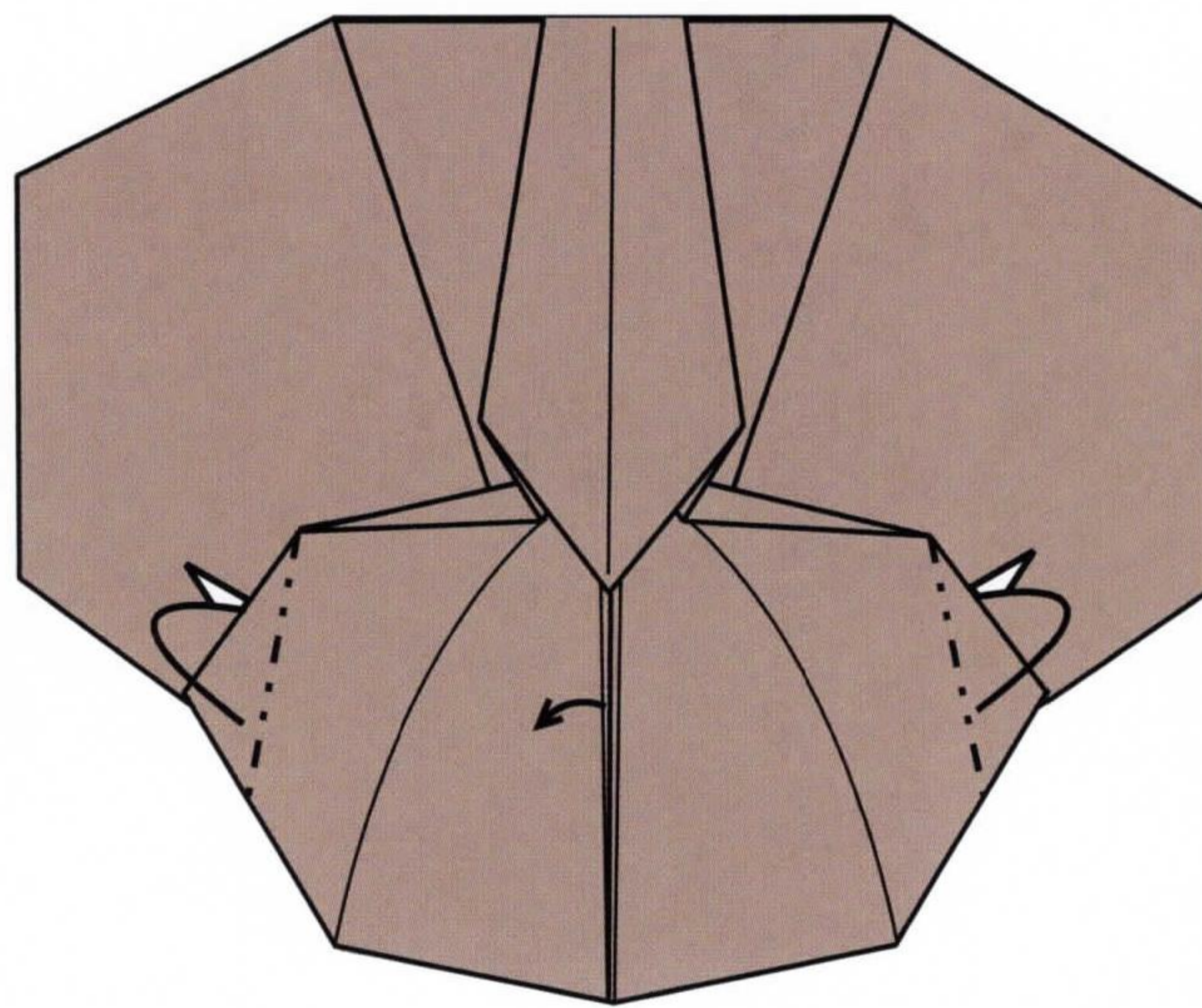
30. Repeat on the other side.



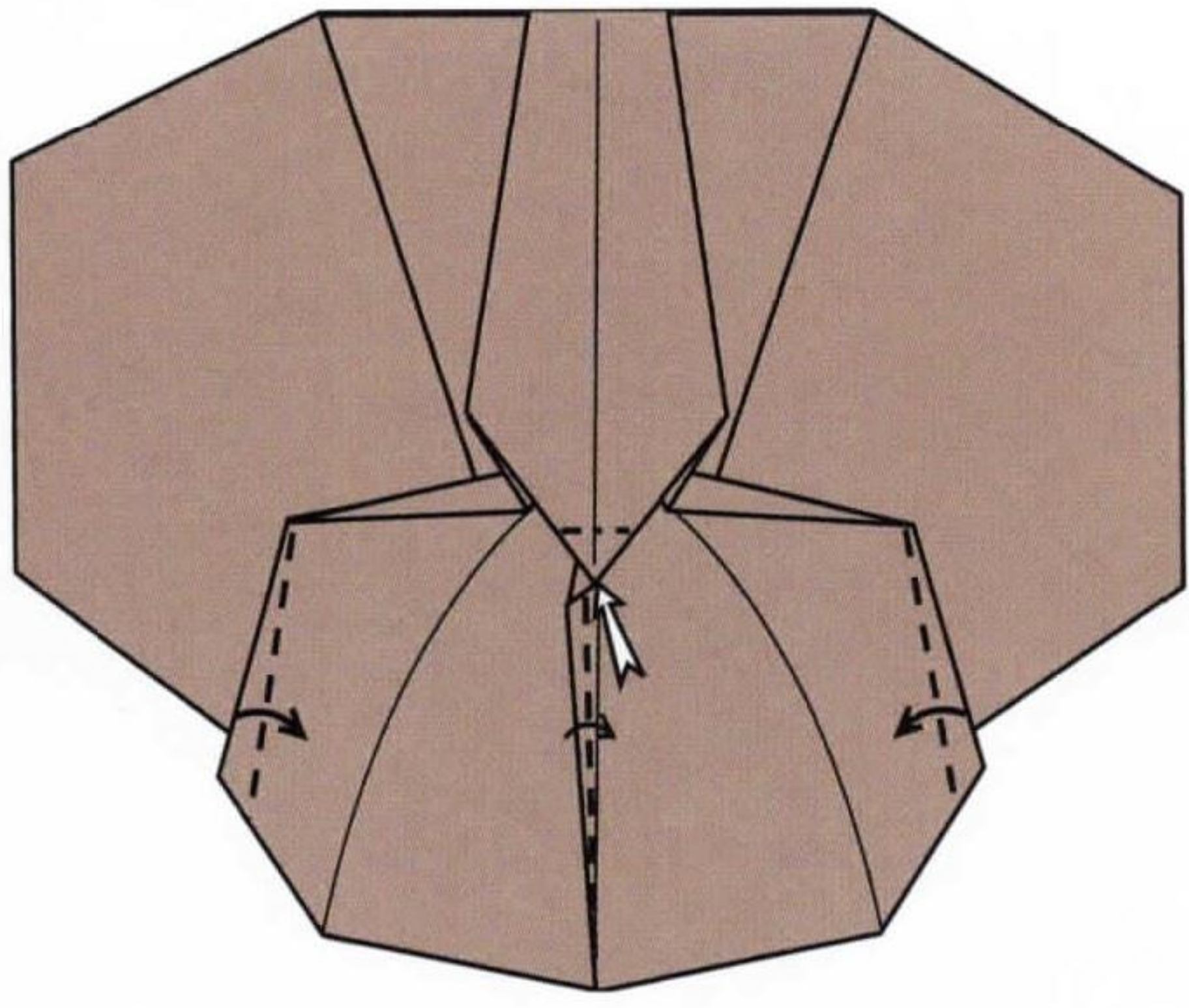
31. View of the back at this stage.



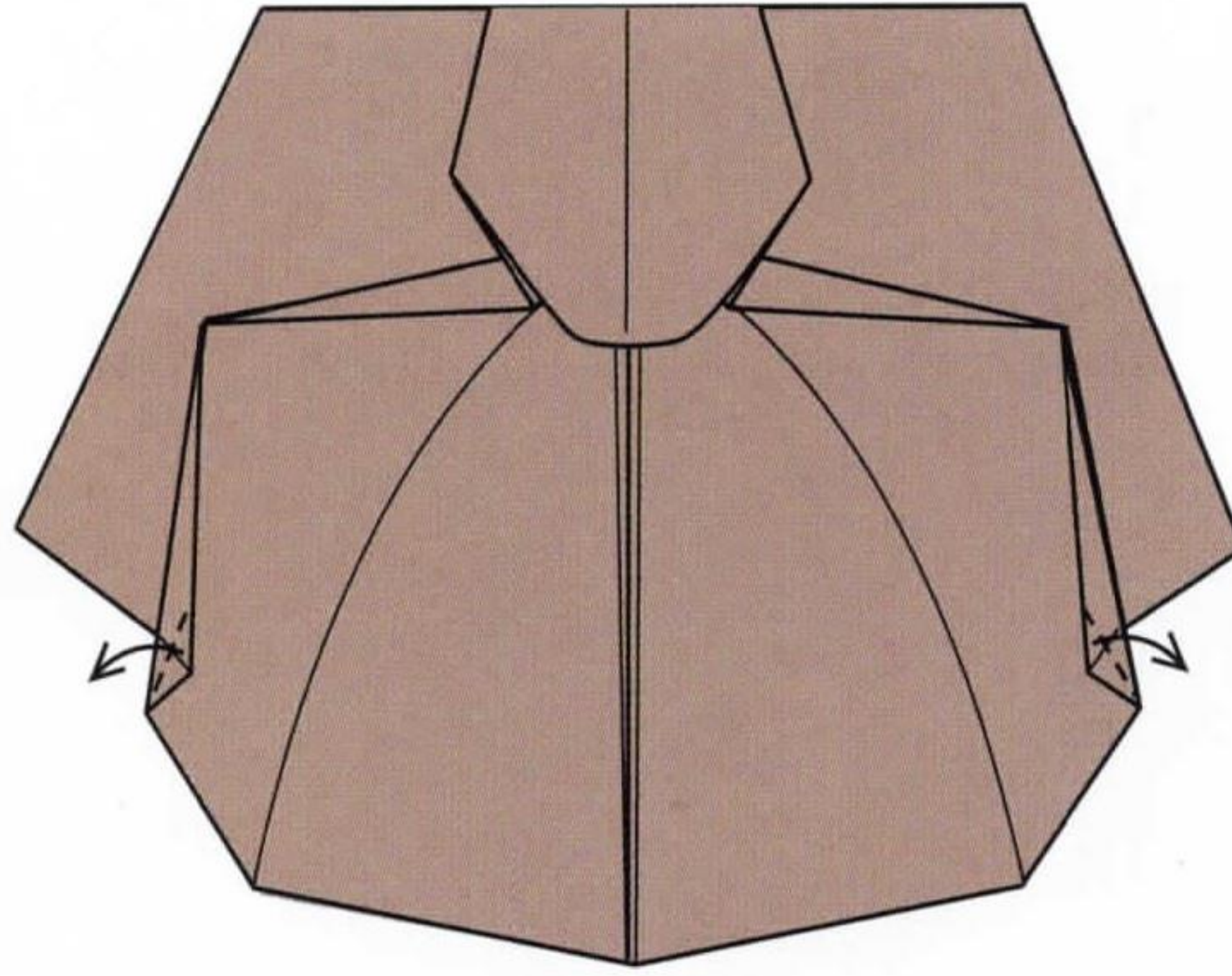
32. Define the tops of the legs by pulling flaps forward, tucking behind the tailbone.



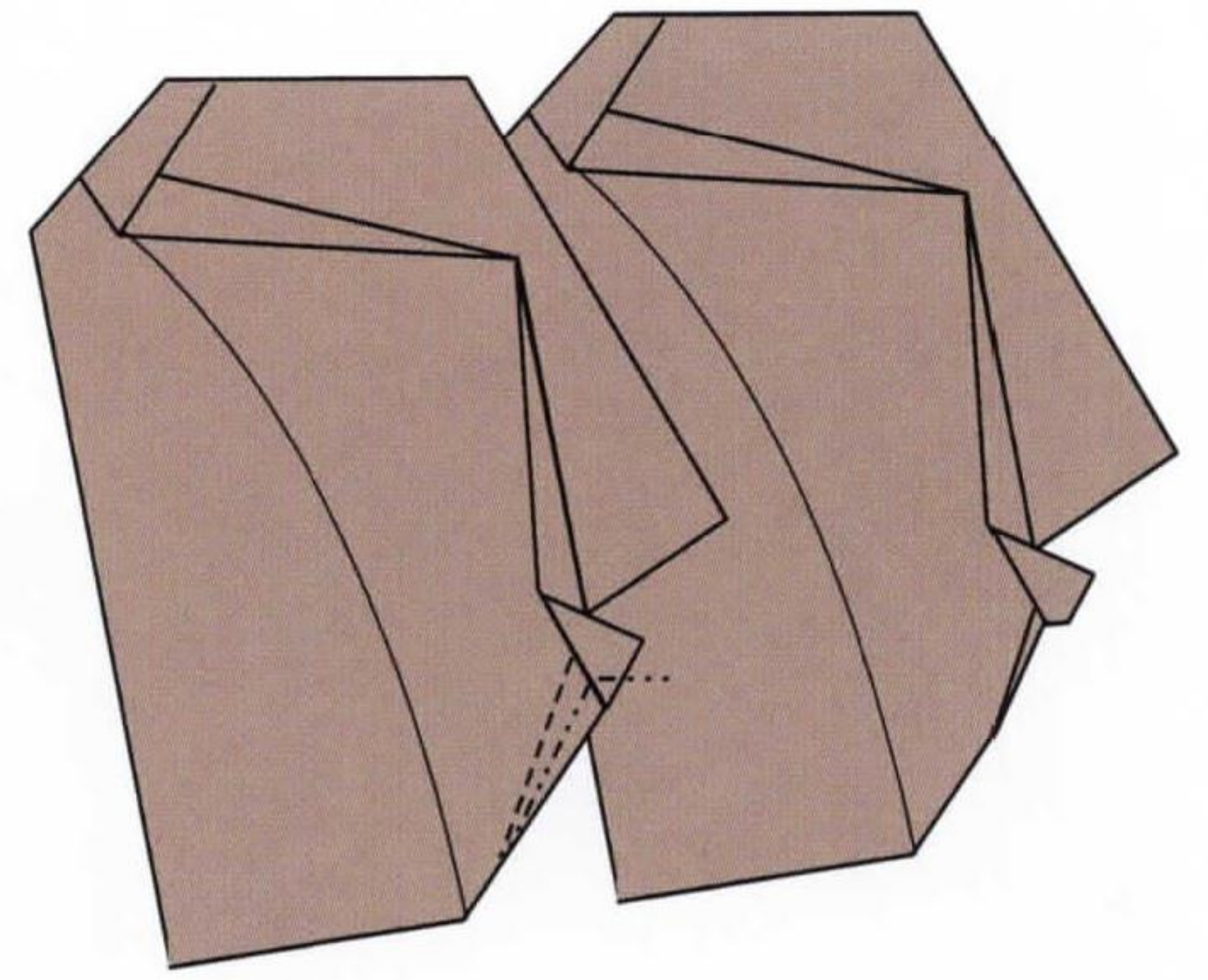
33. Mountain-fold behind.



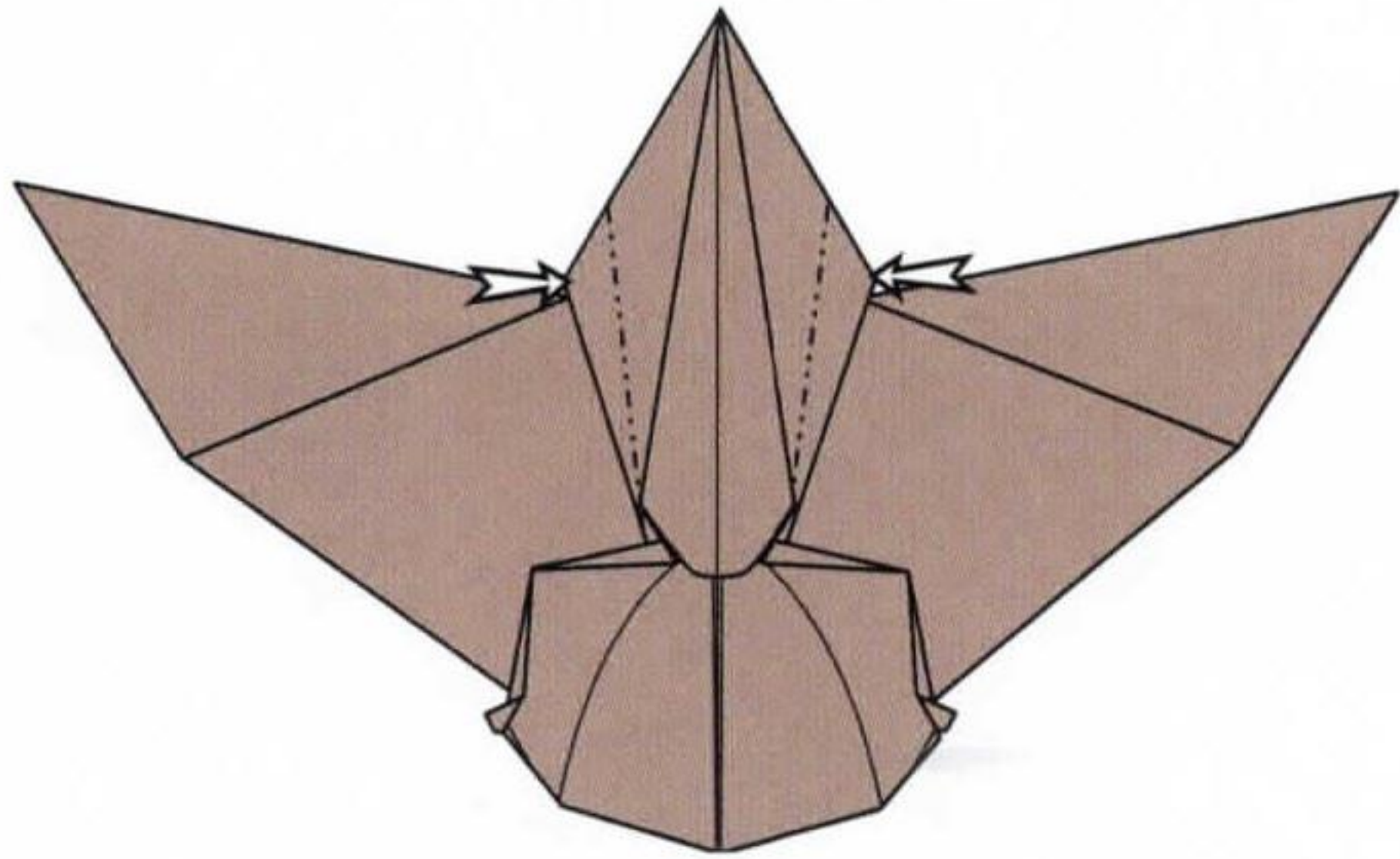
34. Narrow the tailbone. Valley-fold the upper edges of the leg.



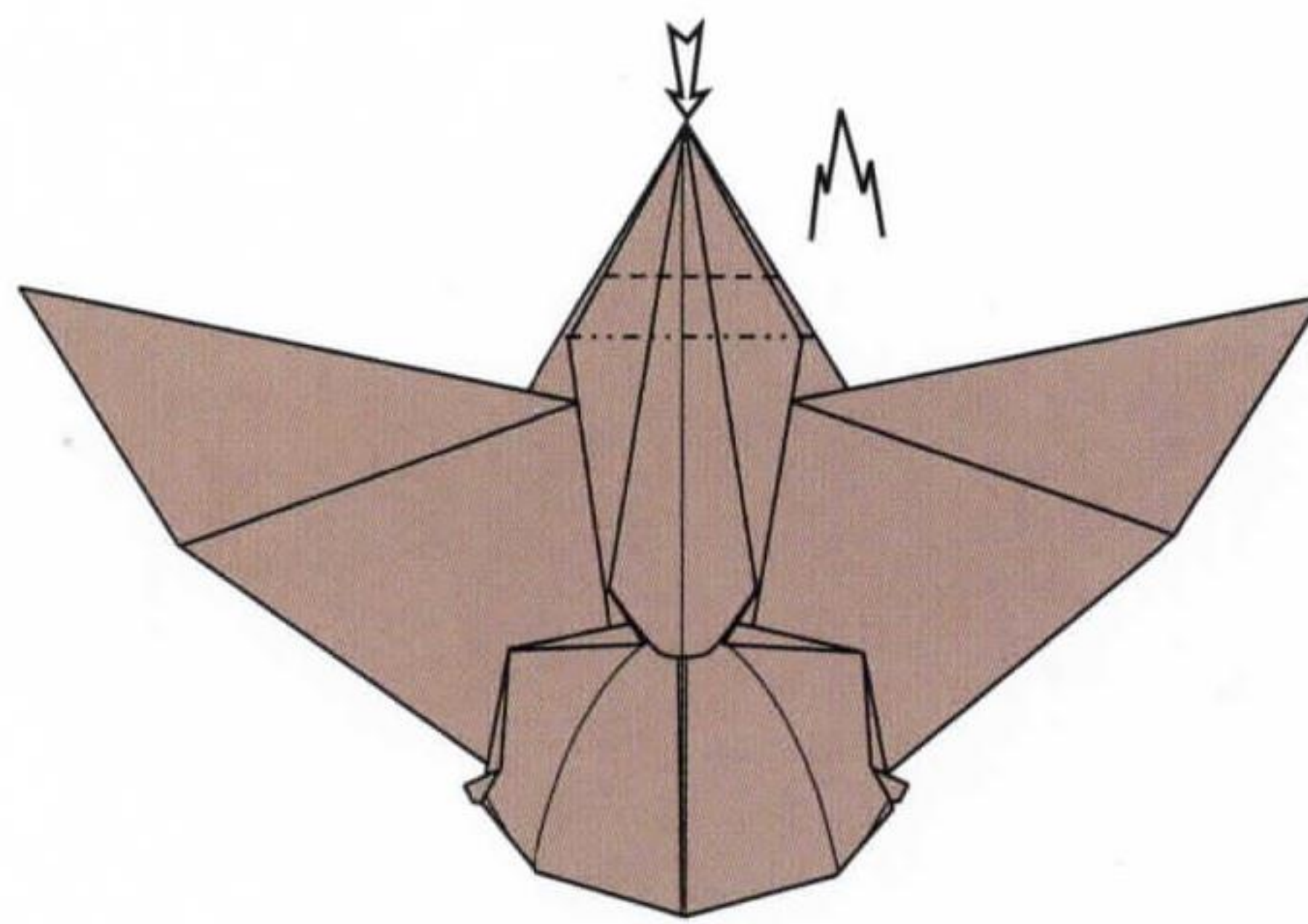
35. Fold the feet.



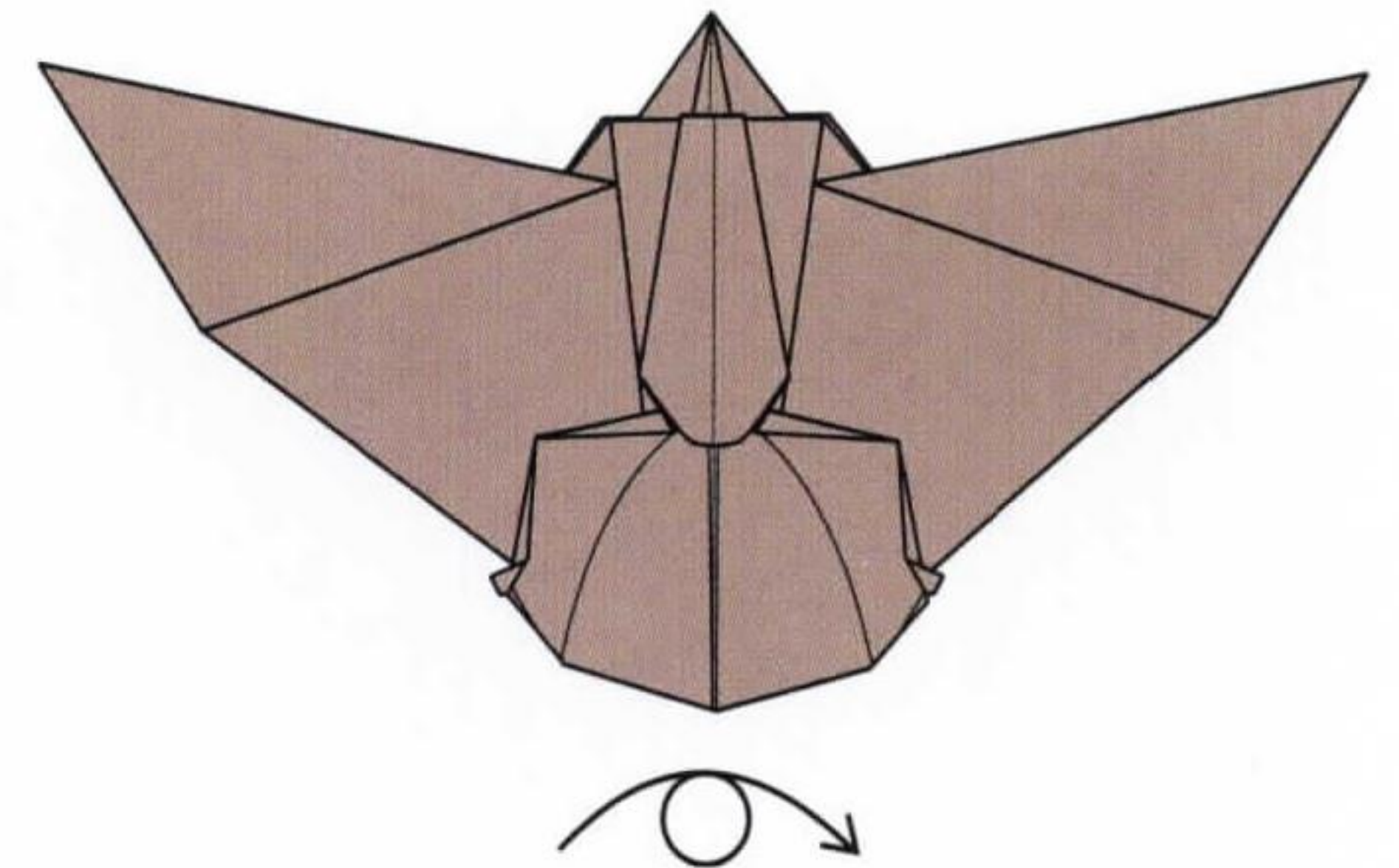
36. Mountain- and valley-fold a thin triangular shape at the back of the feet to form the calcar (spur-like projection).



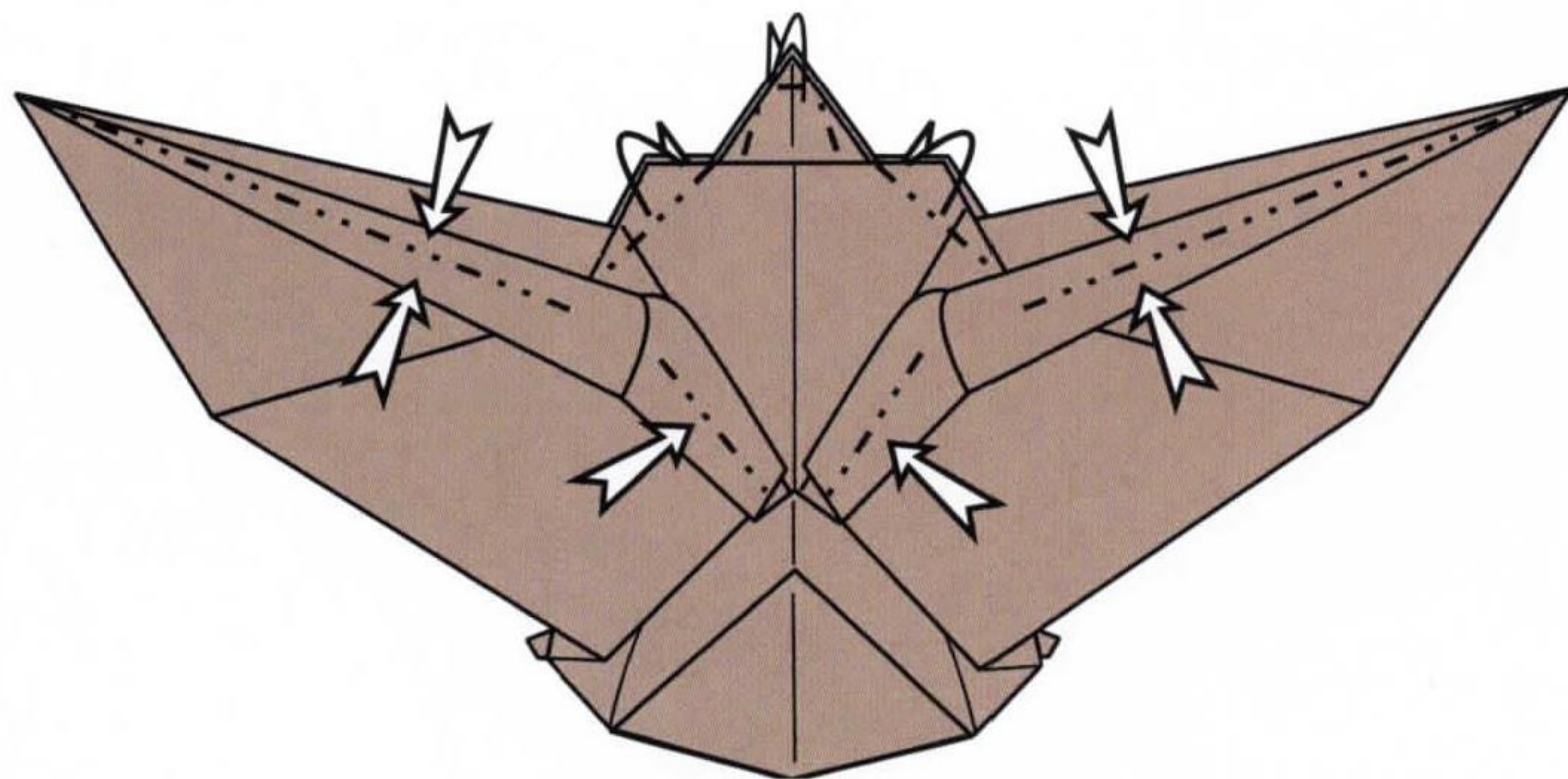
37. Push paper in to sink.



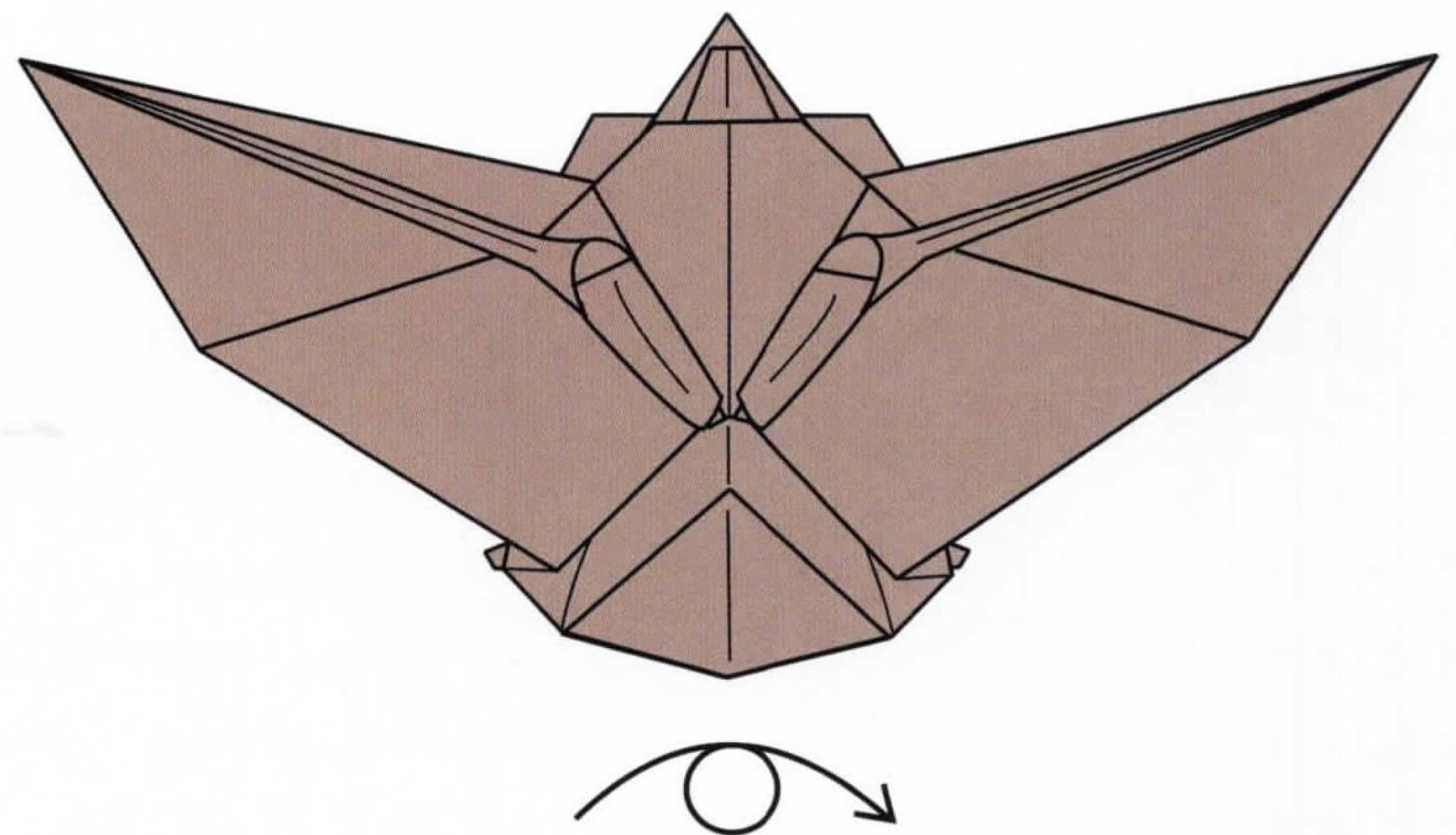
38. Crimp the head and neck area inward.



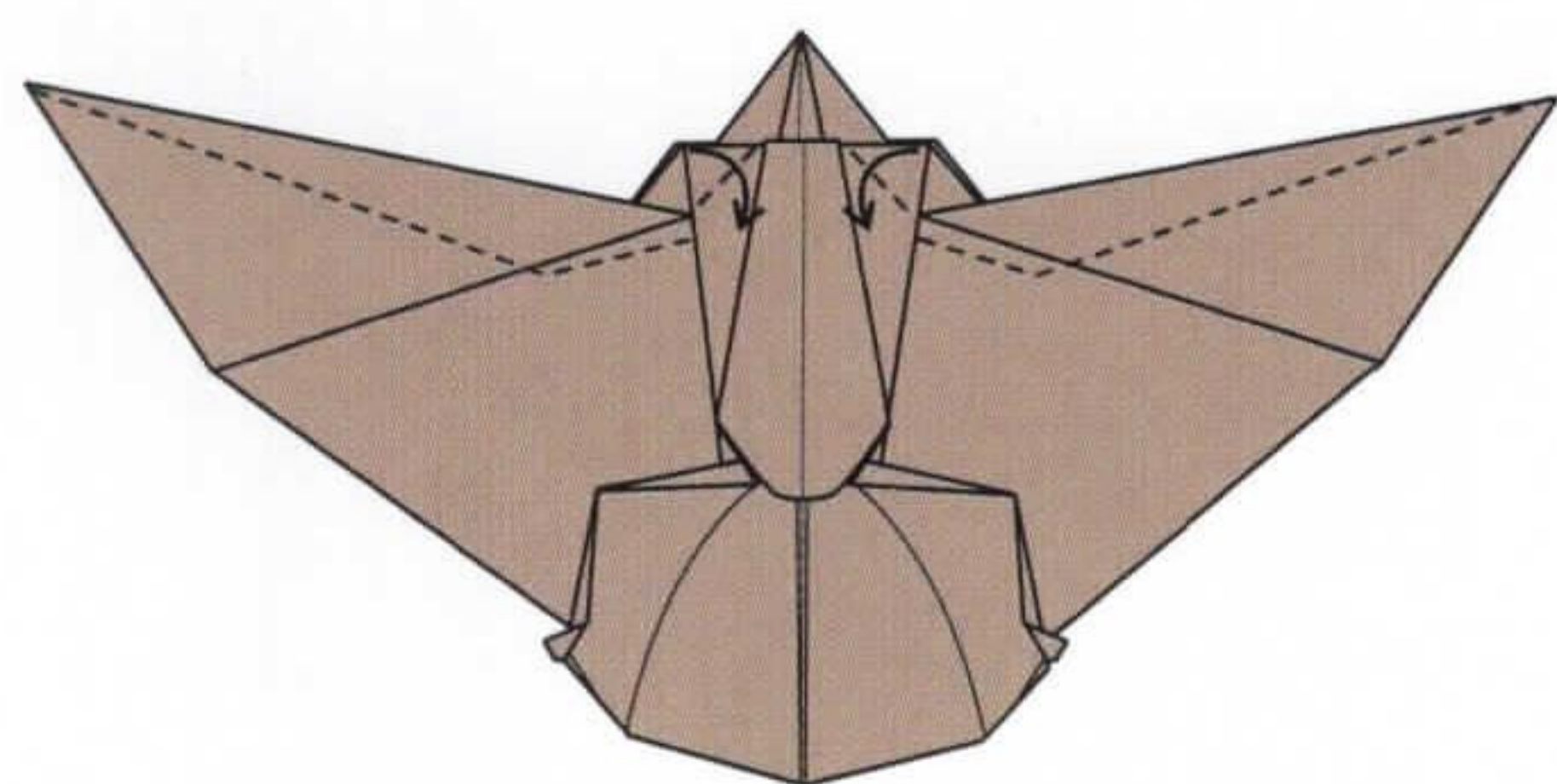
39. View from the top at this stage. Turn the model over, left to right.



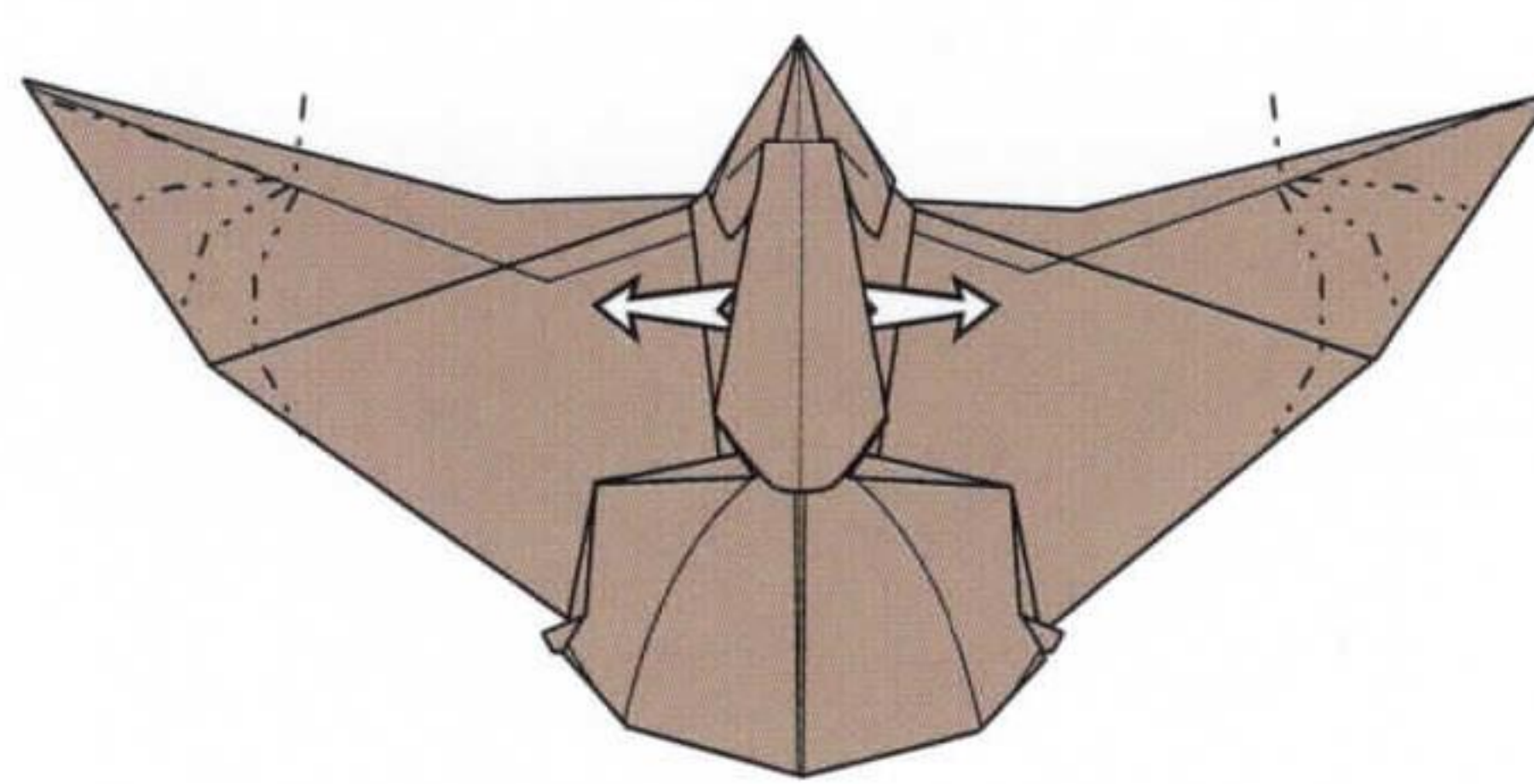
40. Accentuate the arm bones with mountain folds. Round out the chest and neck area. Shape the lower lip and jaw.



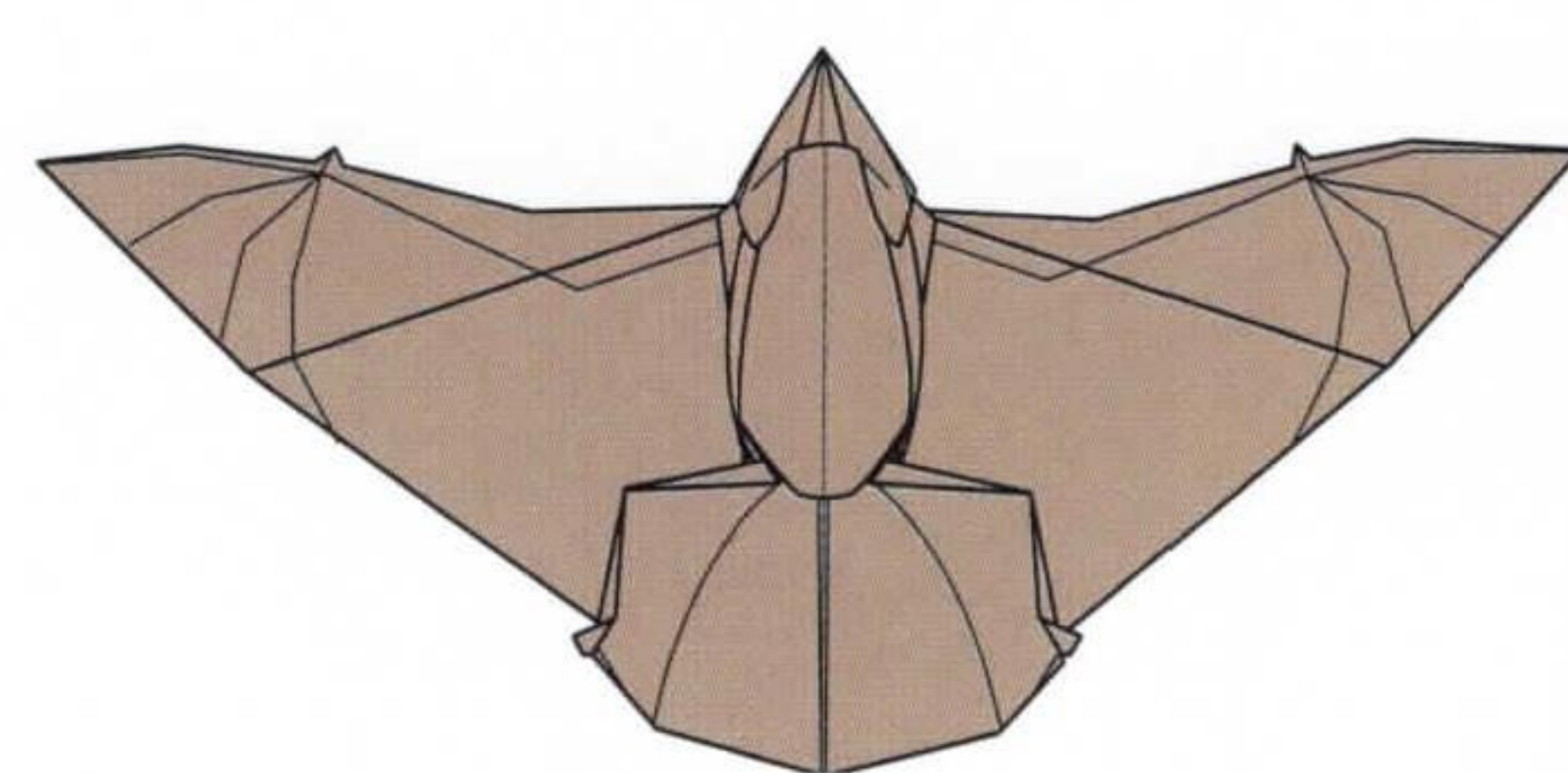
41. View at this stage. Turn the model over, left to right.



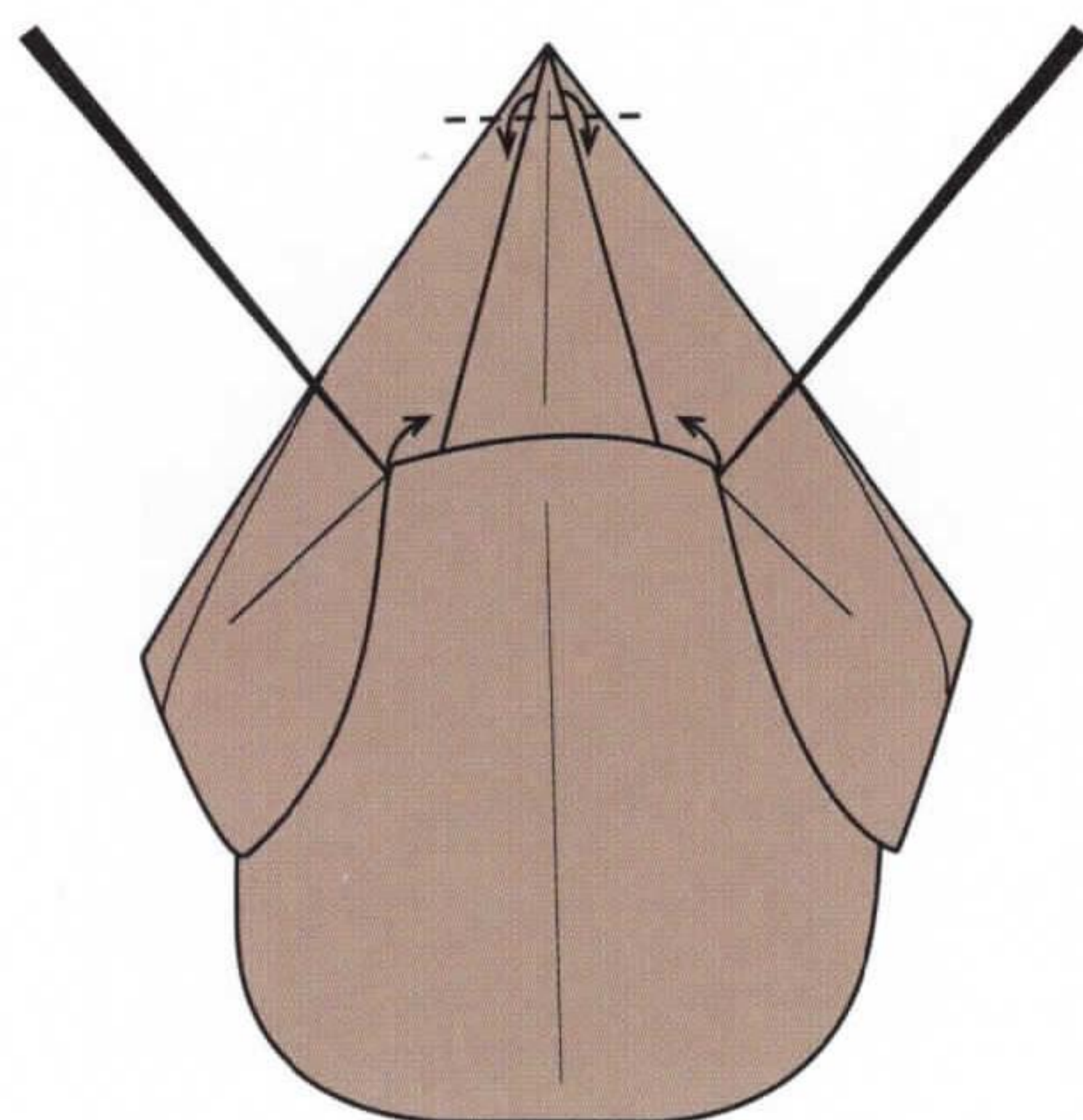
42. Valley-fold the head corners back for the ears. Valley-fold the tops of the arm bones from chest to wingtips following the path of the folded arm paper beneath.



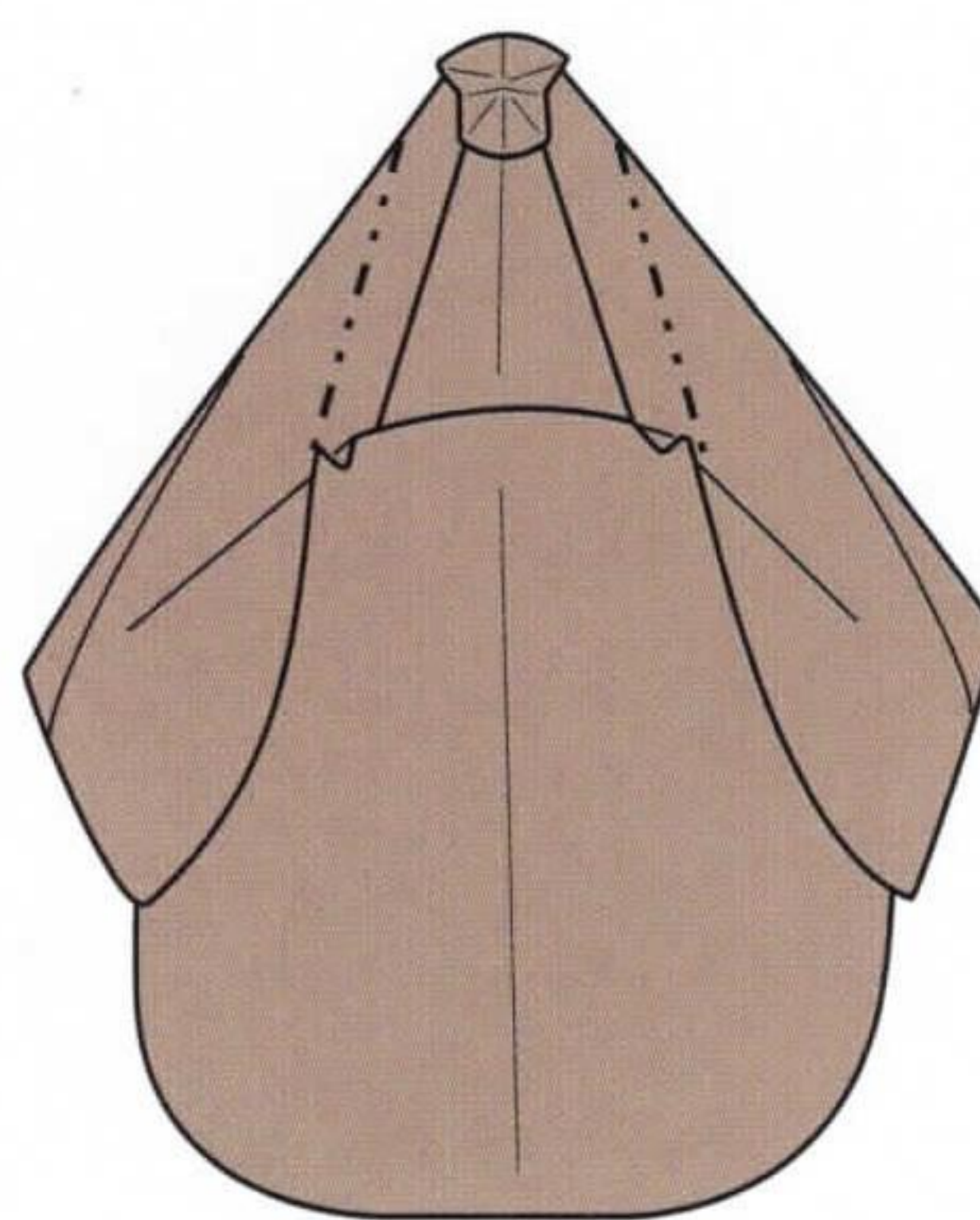
43. Form the finger bones with mountain creases. Pull out to round out the body.



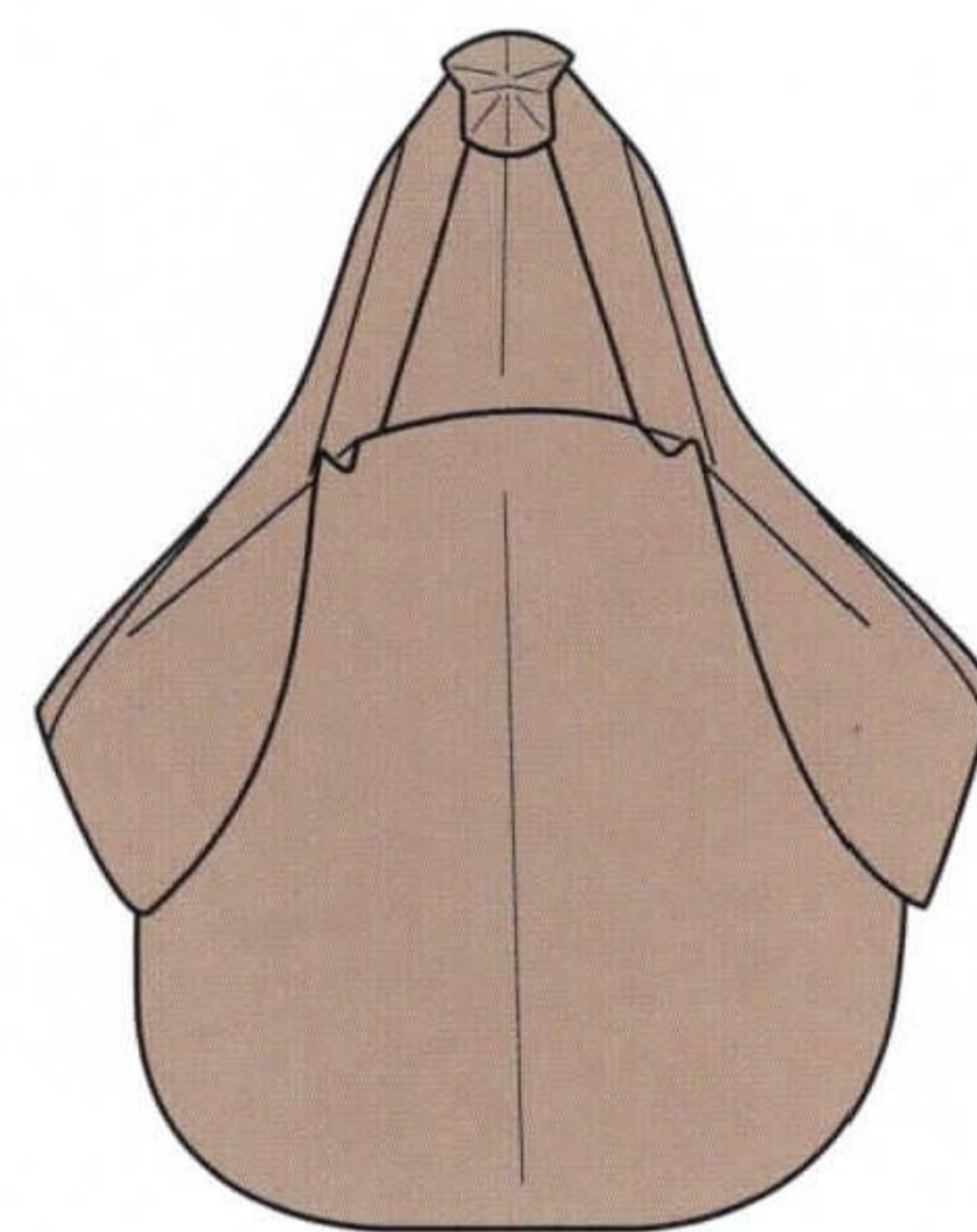
44. View at this stage.



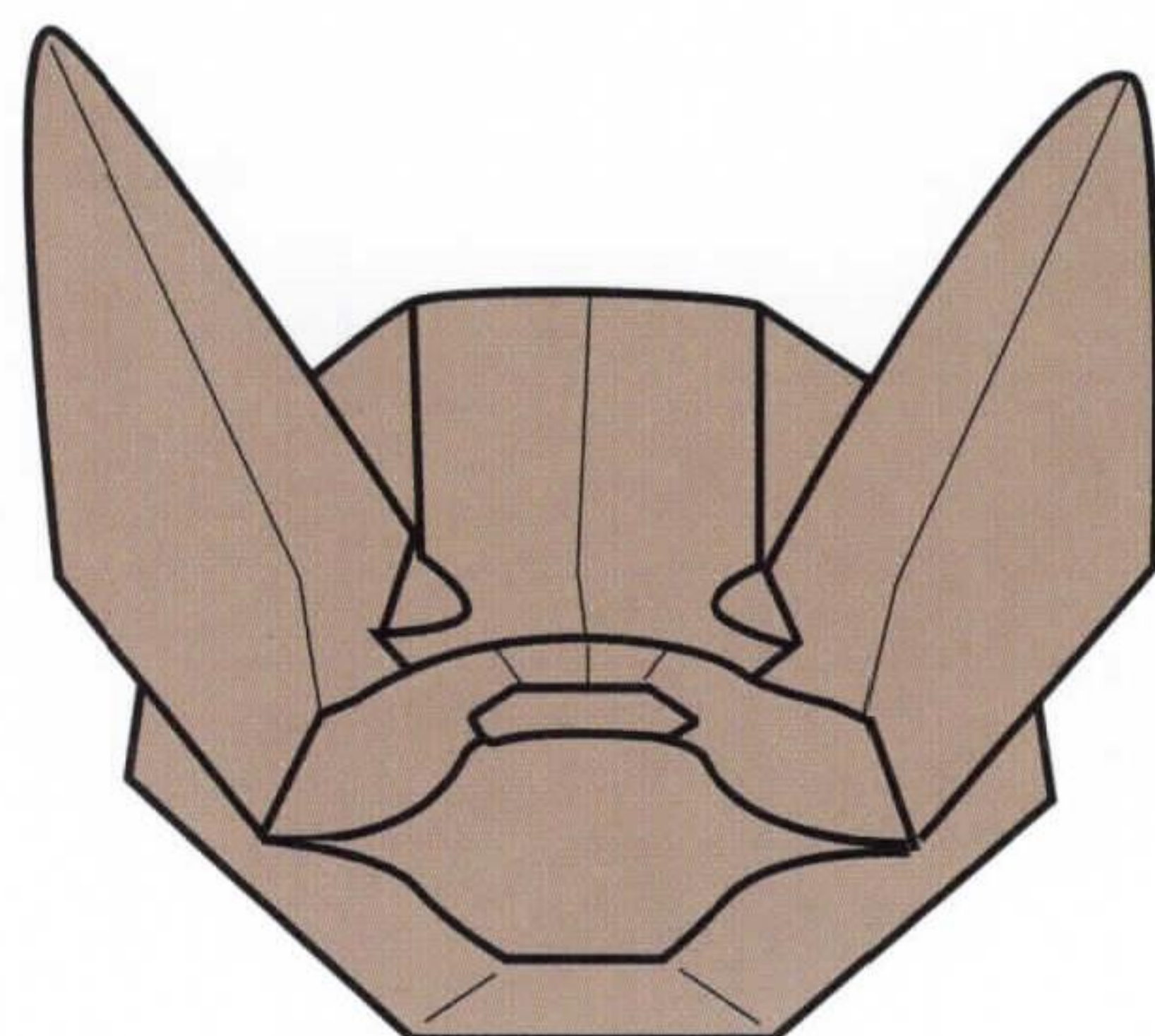
45. Detail of the head area. Open the eyes with the point of a pencil or wooden skewer. Spread-squash the tip of the nose at the end of the muzzle point.



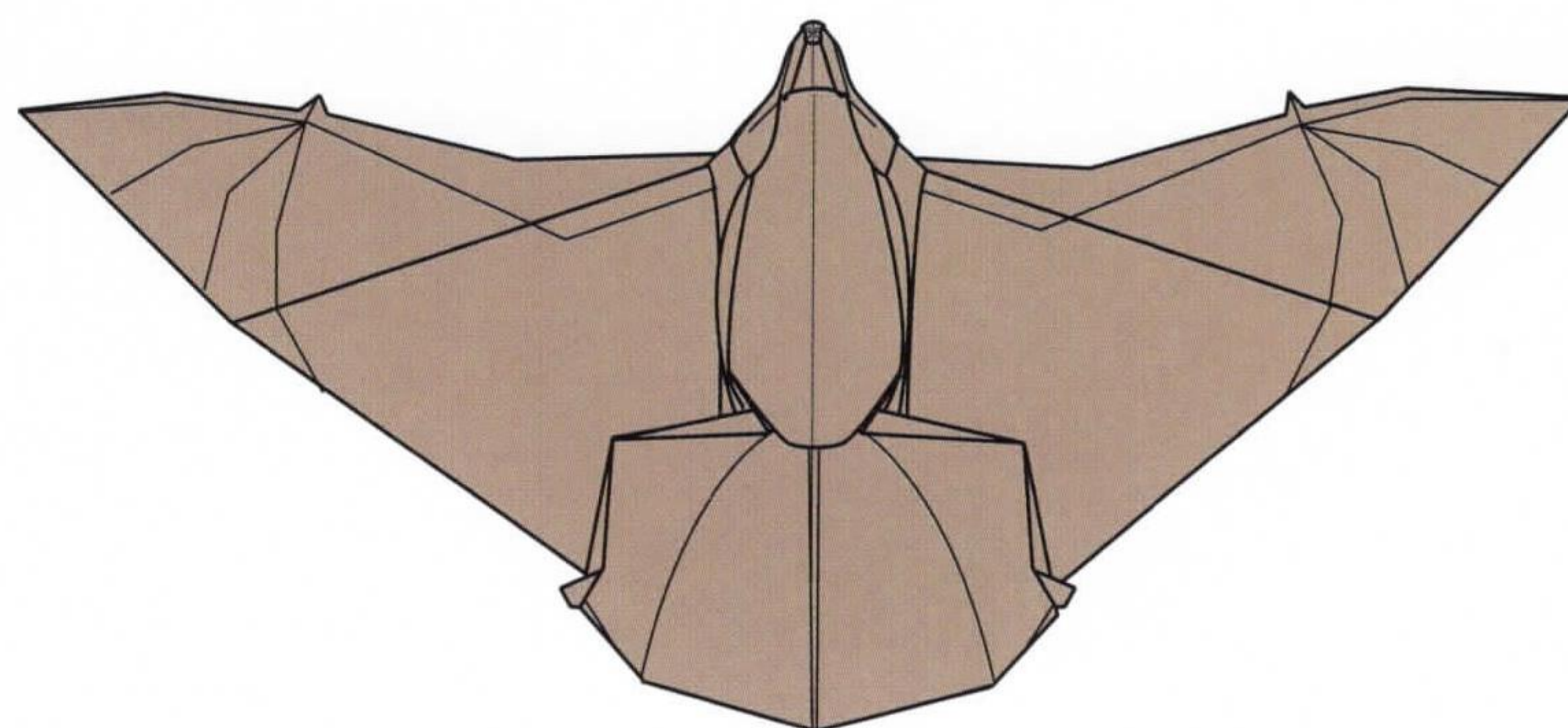
46. Round out the muzzle with mountain folds from beneath the eyes to each side at the end of the bat's snout.



47. Top view at this stage of the head detail.



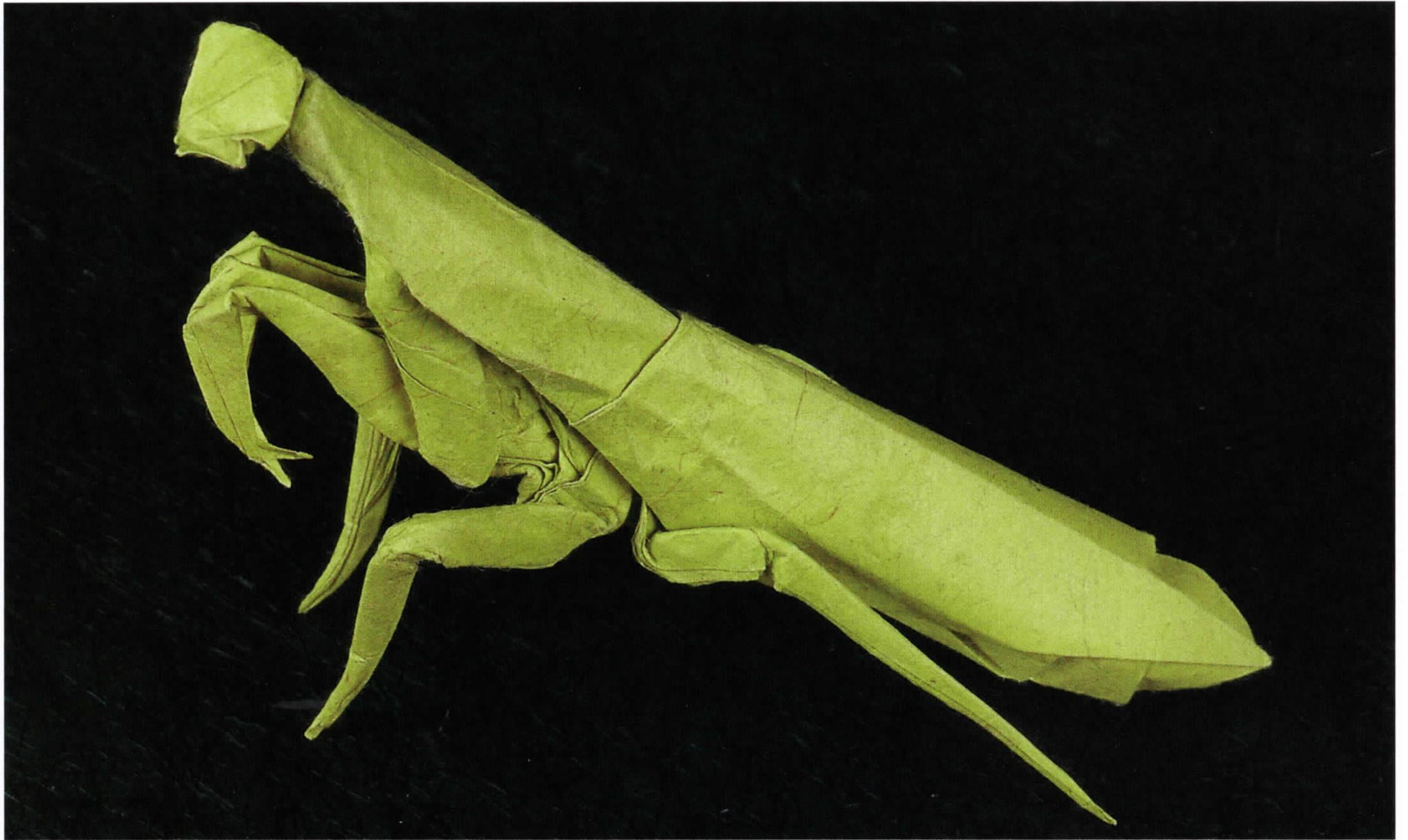
48. Head-on end view of the face.



49. Top view of the finished Big Brown Bat.

praying mantis

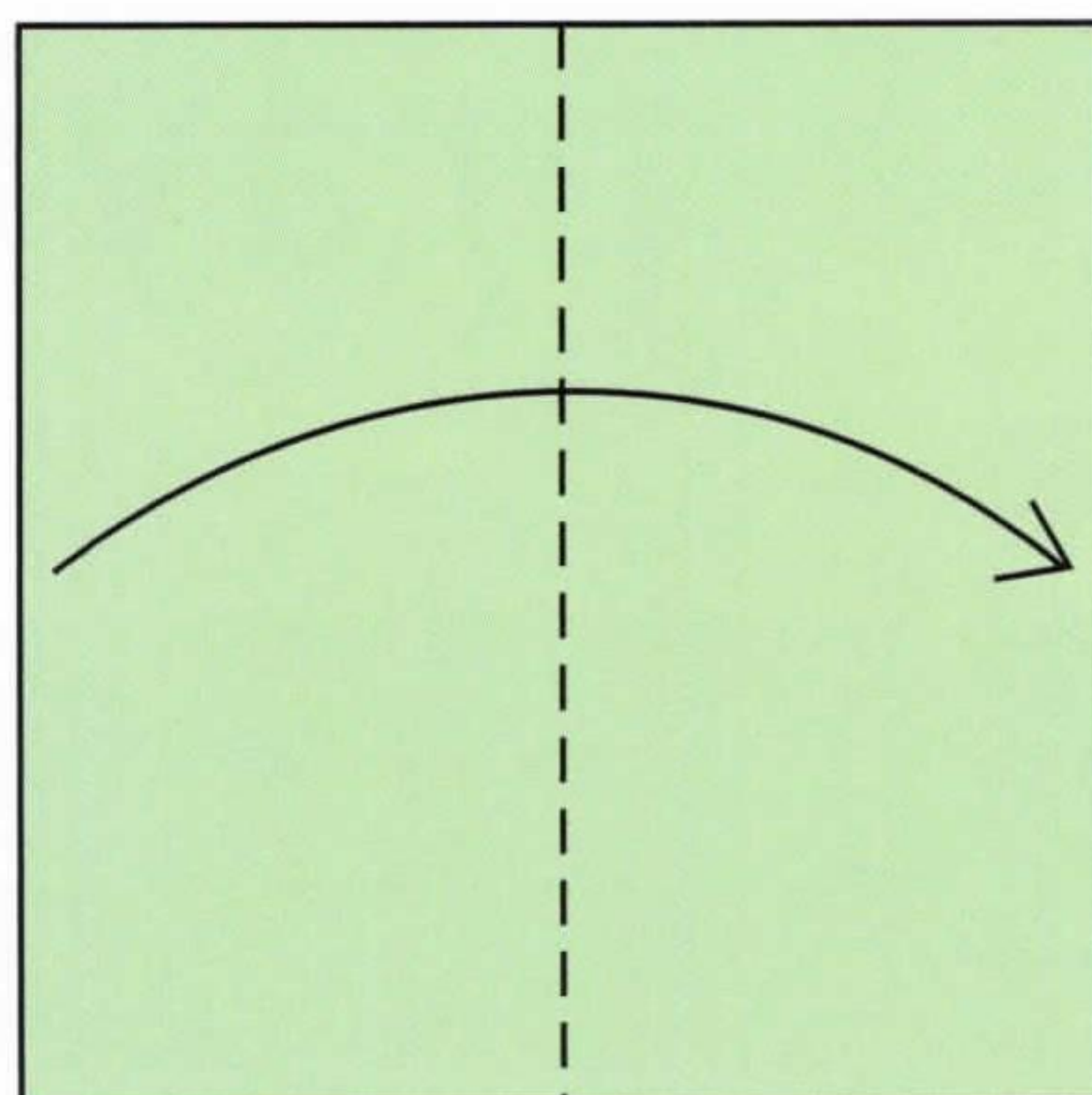
Designed by Michael G. LaFosse



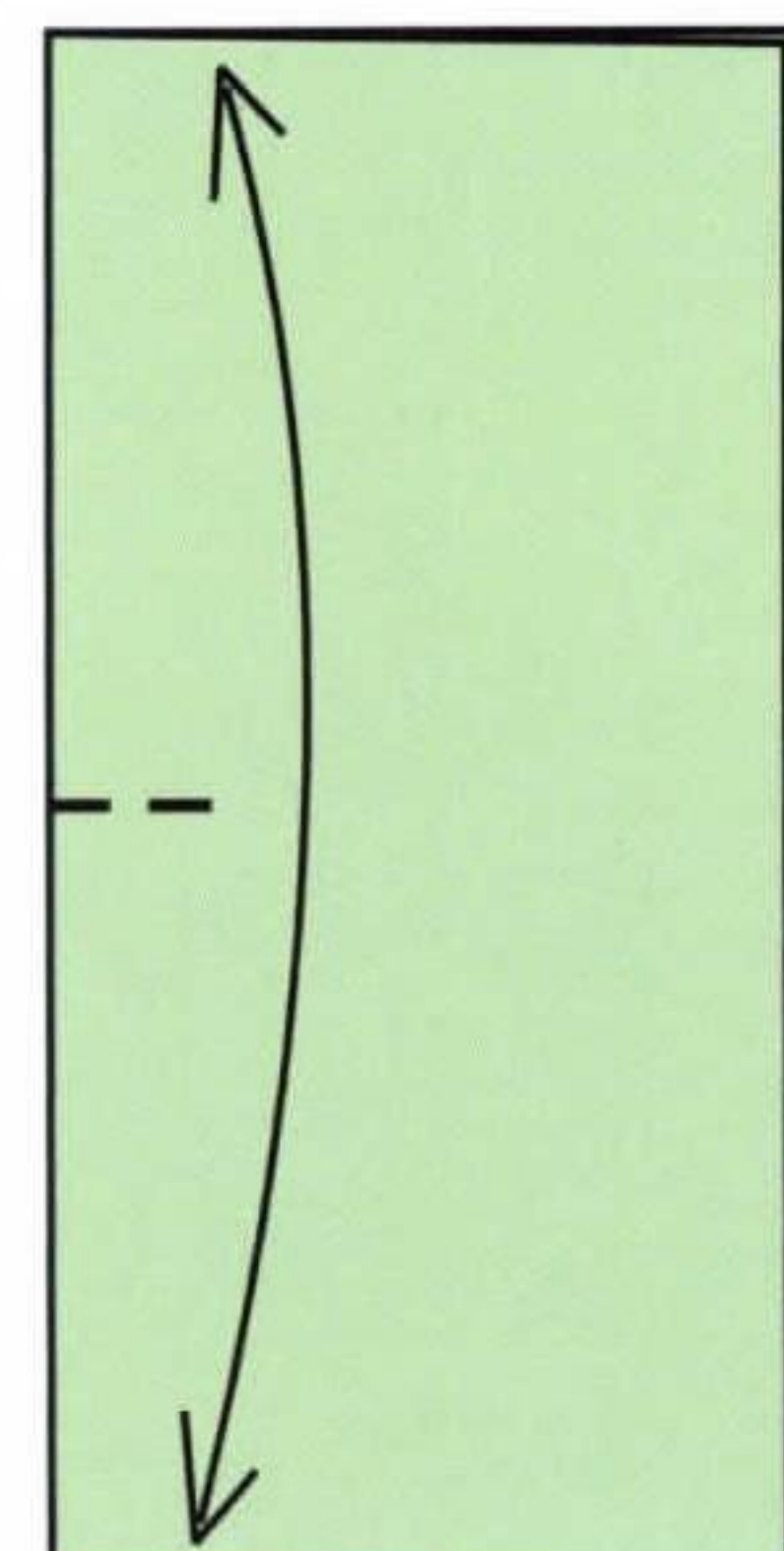
Science fiction screenwriters could not dream up better alien life forms than these exotic-looking insects. Their apple green color, huge intelligent eyes, angular head and powerful arms make their form particularly interesting to me. During my summers at Vinton Pond in West Townsend, Massachusetts, I was able to study these insects in the nearby field of tall grasses. A few years ago, the OrigamiUSA directors met to inventory the forgotten collection of origami models stacked in a basement storage room beneath the American Museum of Natural History in New York City. We came across a box that I recognized. I exclaimed that we had found the original Praying Mantis I had folded in the 1970s as a gift to the late Lillian Oppenheimer, who was head of the Origami Center at that time. A director who was standing near me as I opened the lid declared, "Nobody was folding anything like that in the seventies." I showed him the inscription on the box: "Michael G. LaFosse—1978." Although it was advanced for its time, present-day designers of super-complex origami models have far surpassed its technical achievements. Robert Lang, Satoshi Kamiya and others do not shy away from designing and folding any insect, no matter how complex it may appear.

PAPER SUGGESTIONS

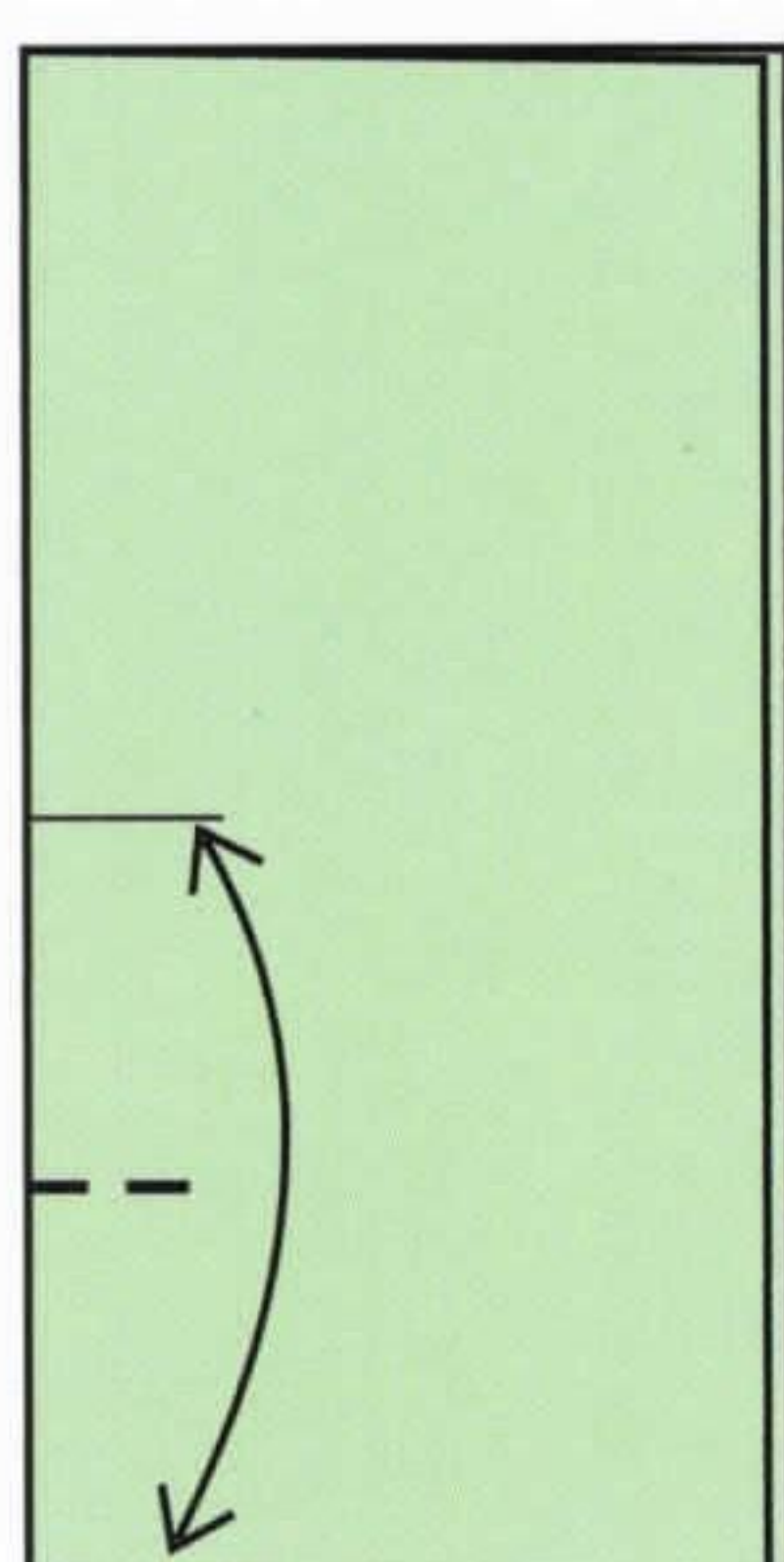
The paper must be tissue thin to render the legs so slender. We use overbeaten pulp (with super-hydrated abaca and hemp fibers) to make paper so thin you can see light through it. A 9-inch (23-cm) square will produce a 5-inch (12.7-cm) praying mantis. You may use commercially available art tissue or fine Asian tissue. Be sure to surface-size the Asian tissue before using.



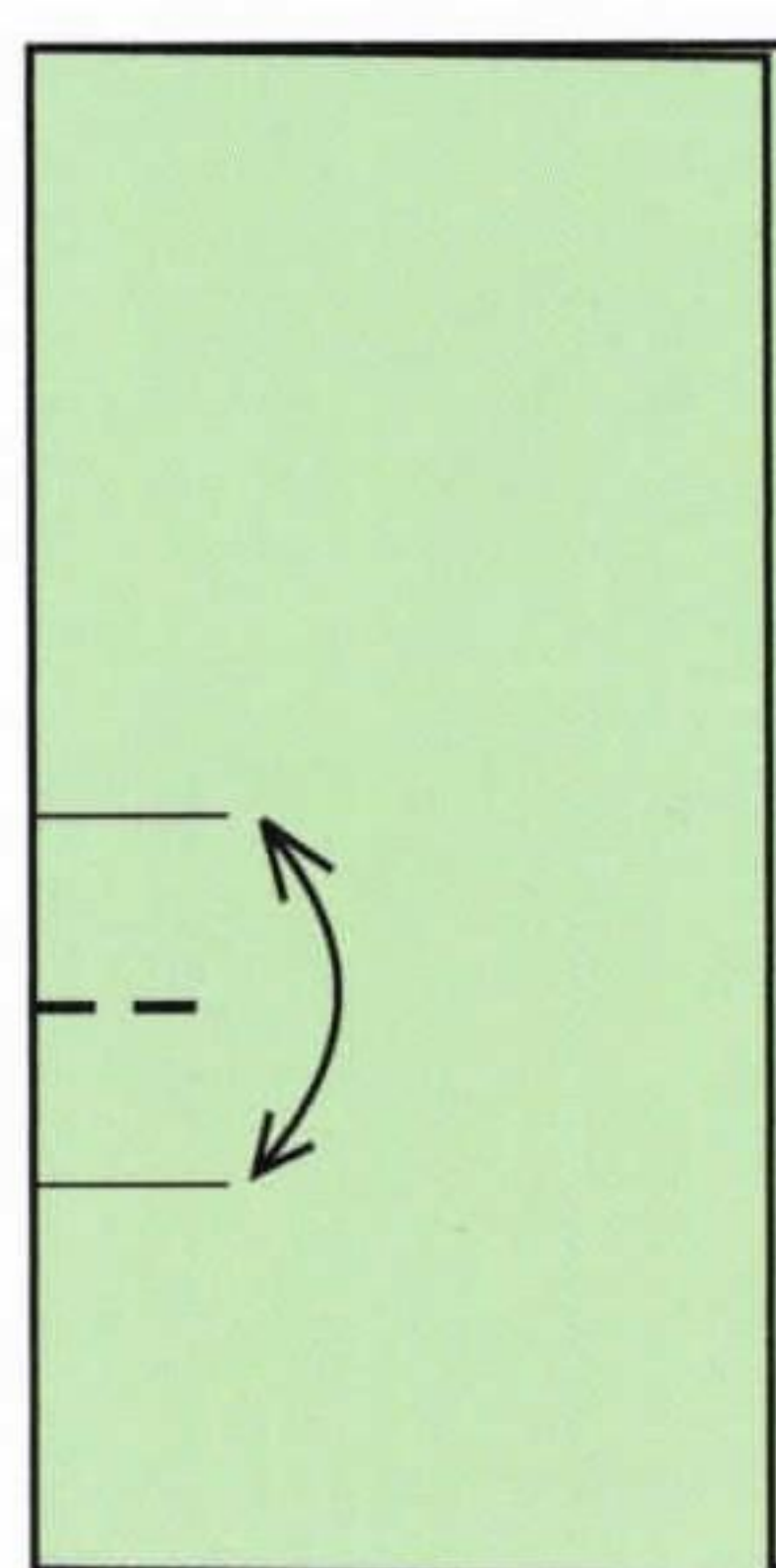
1. Fold the square in half, edge to edge.



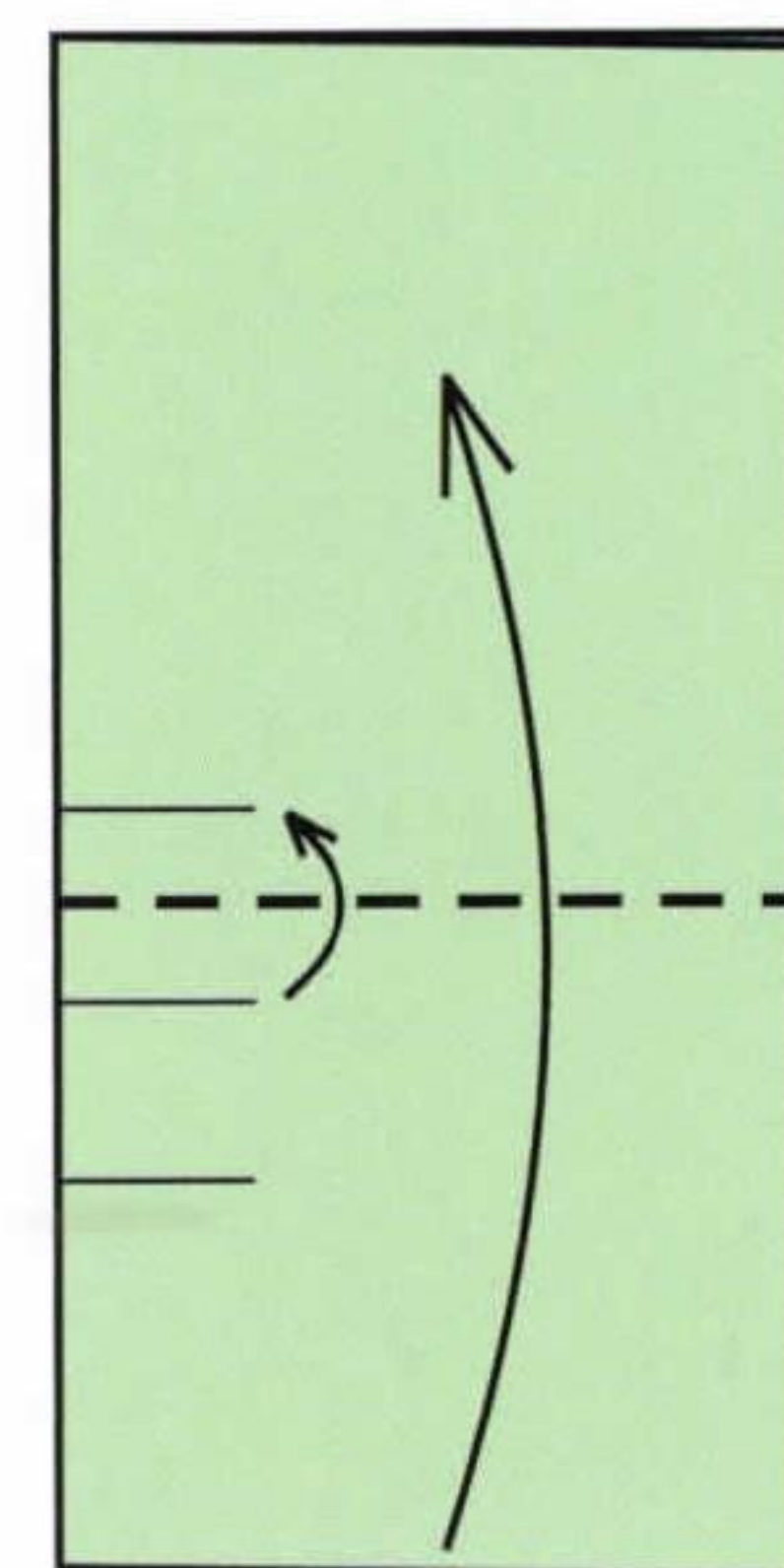
2. Pinch-fold the edge at the halfway mark.



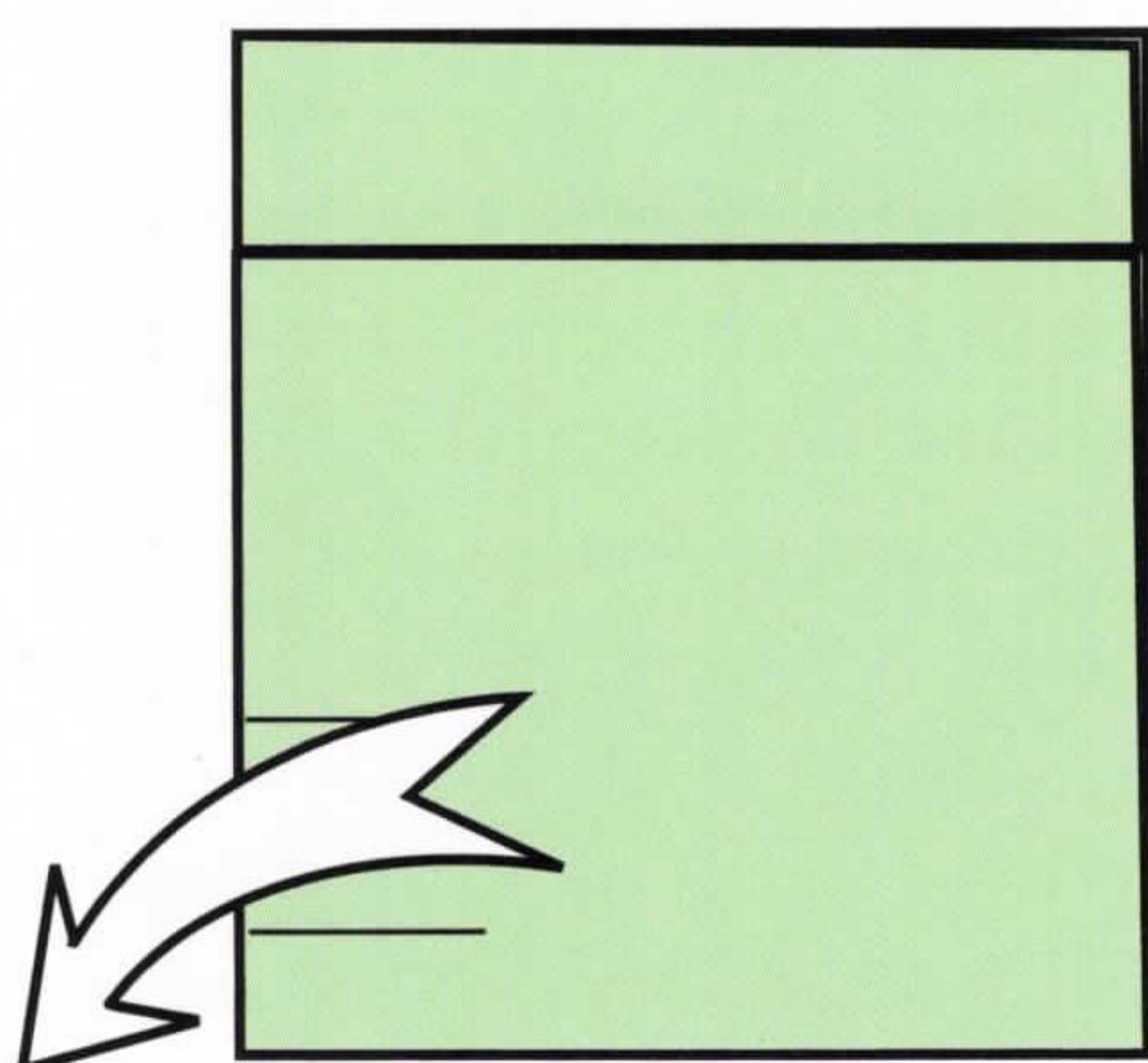
3. Pinch-fold the edge at the quarter-way mark.



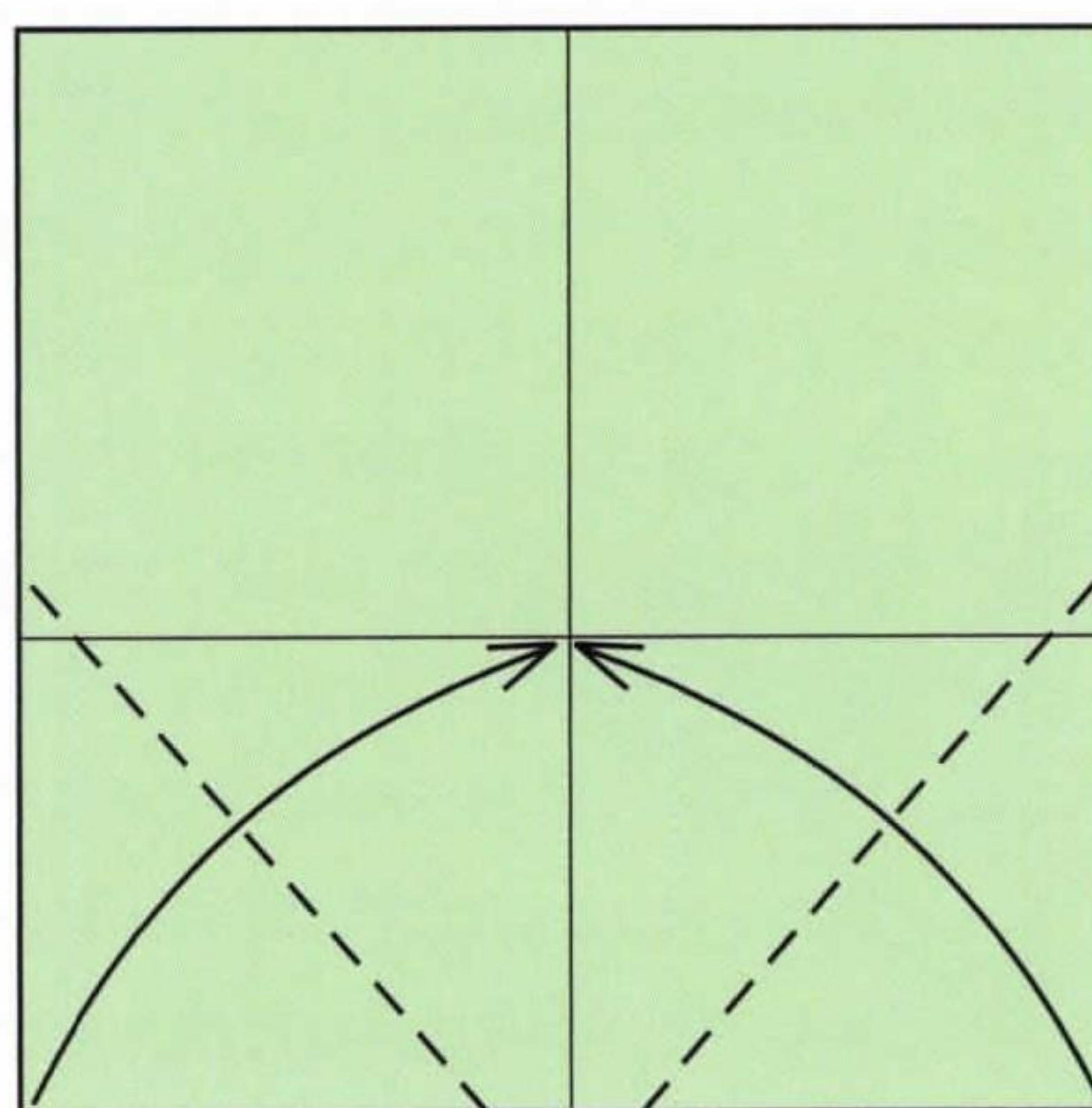
4. Line up the two pinch marks, one on the other. Pinch a third mark between them.



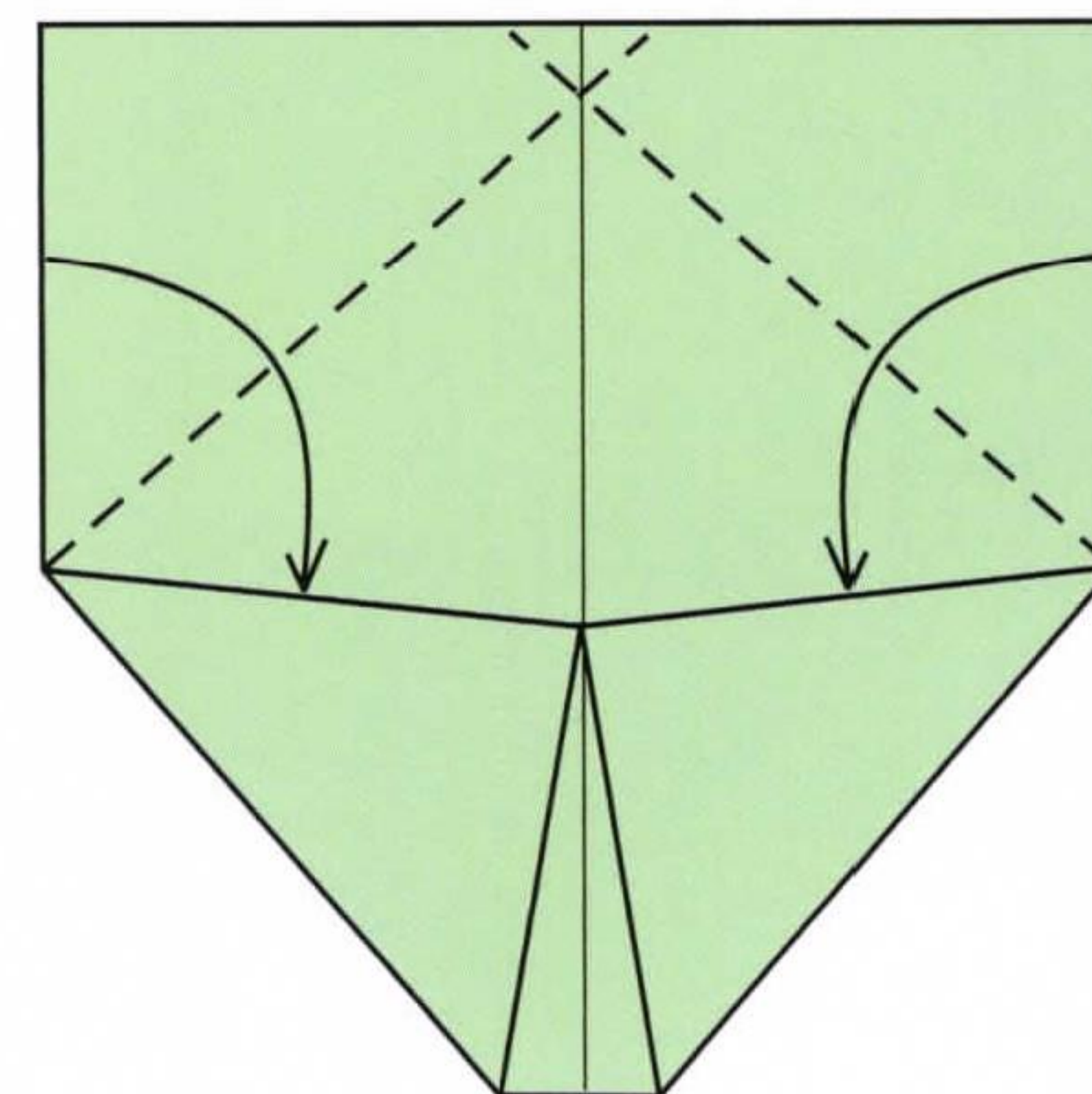
5. Line up the top two pinch marks, one on the other, and fold across.



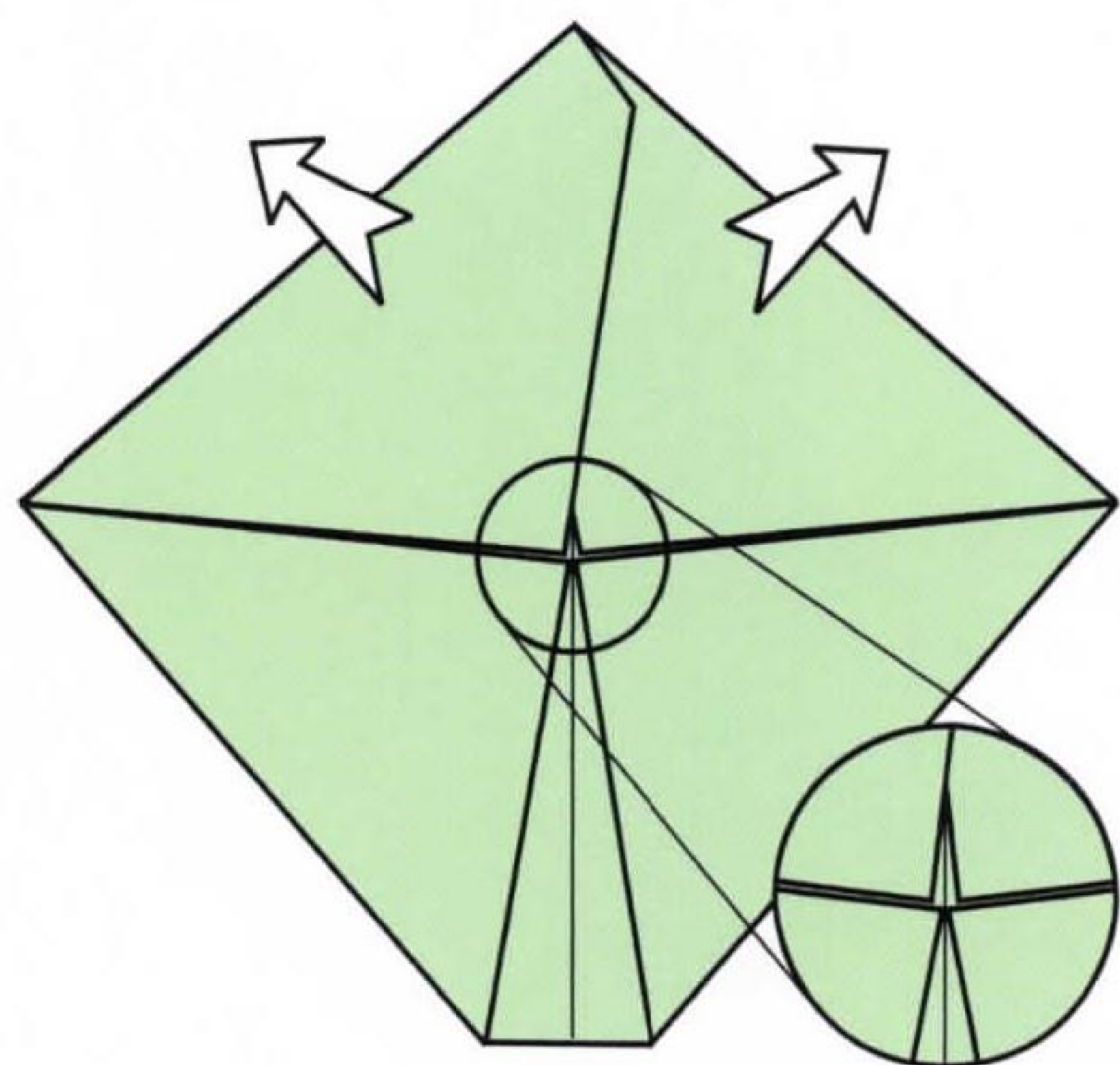
6. Open the paper completely.



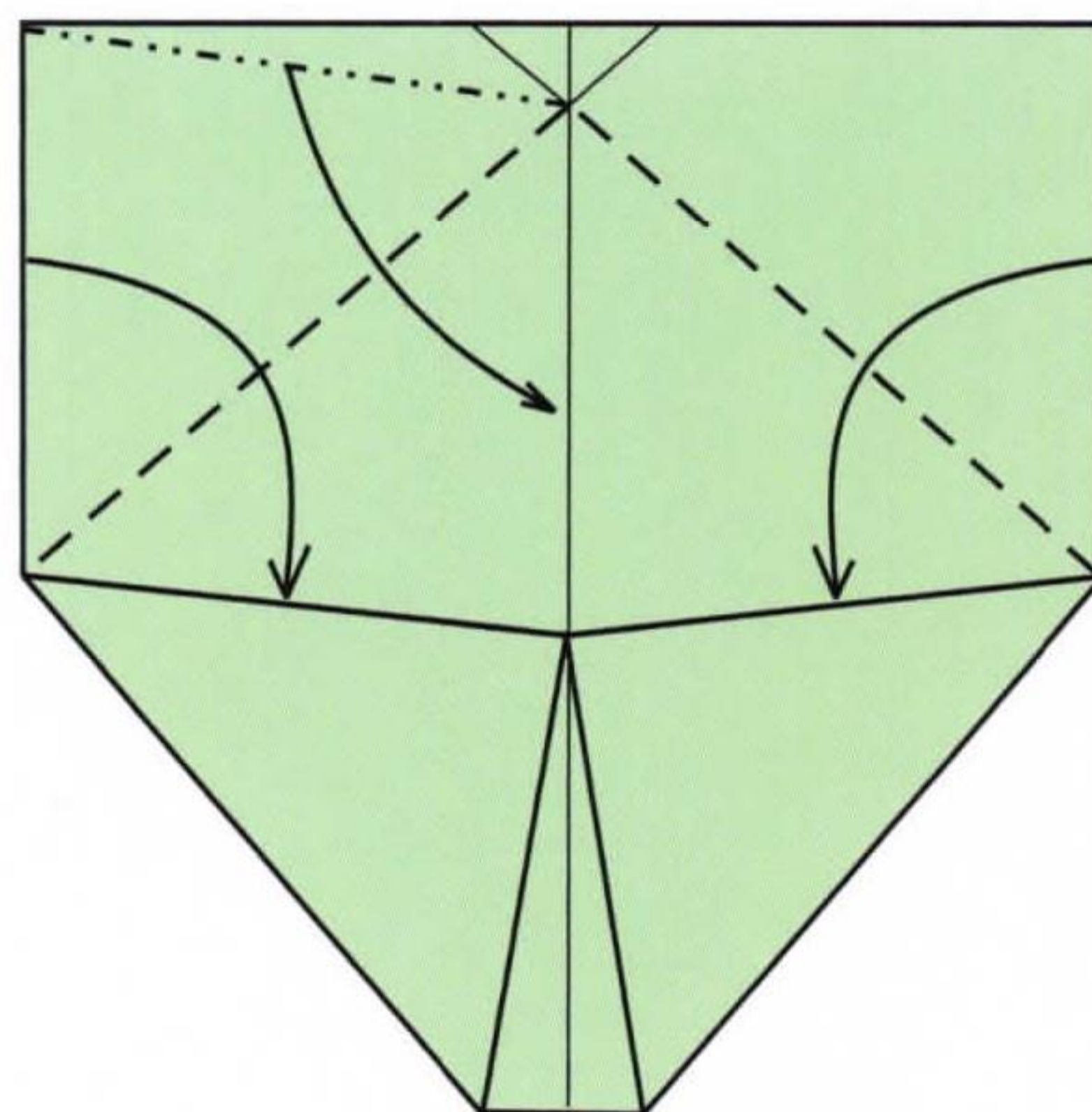
7. Fold up the bottom corners to meet where the creases cross.



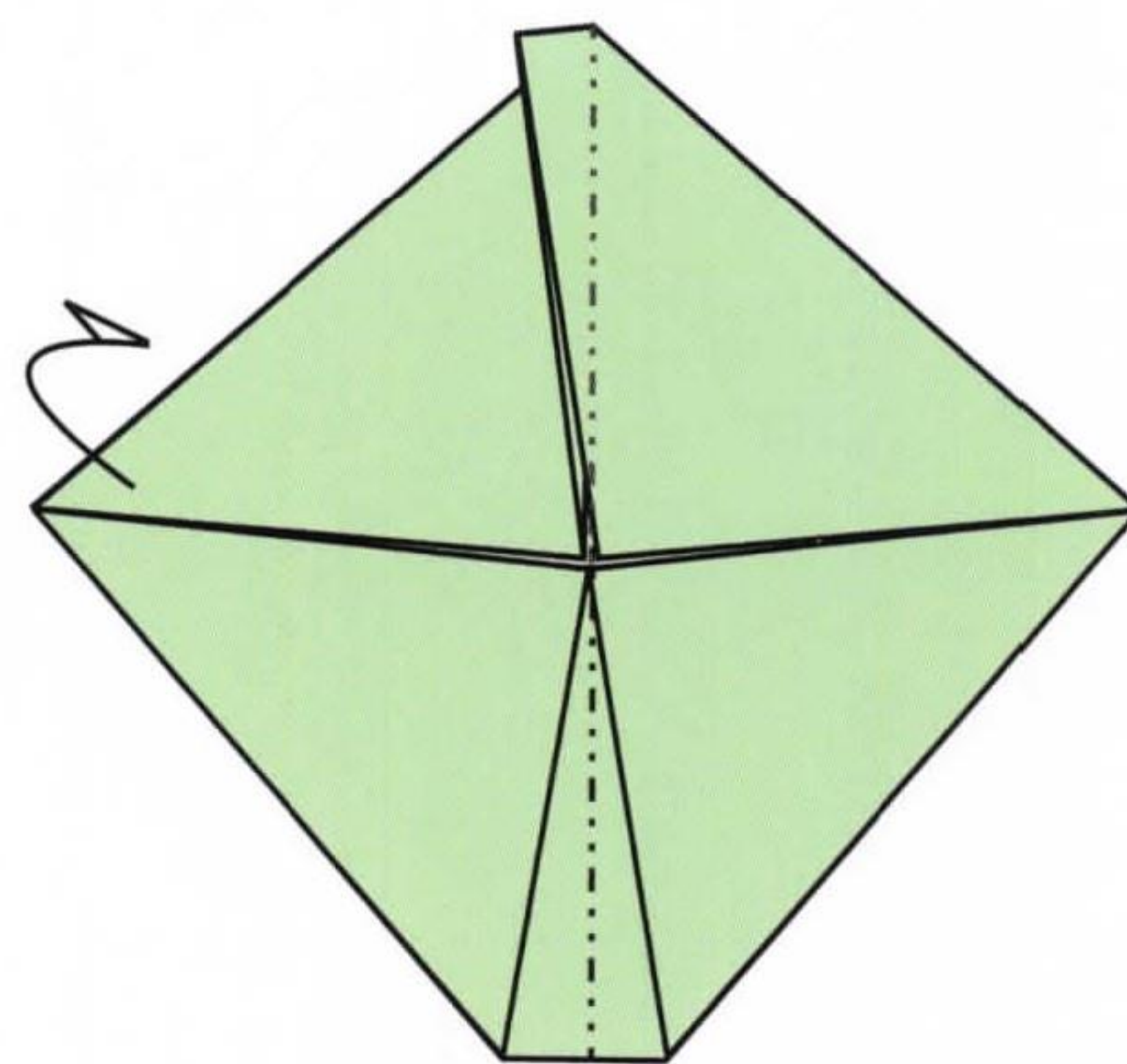
8. Fold the top left and top right edges down to align with the top edges of the lower corners.



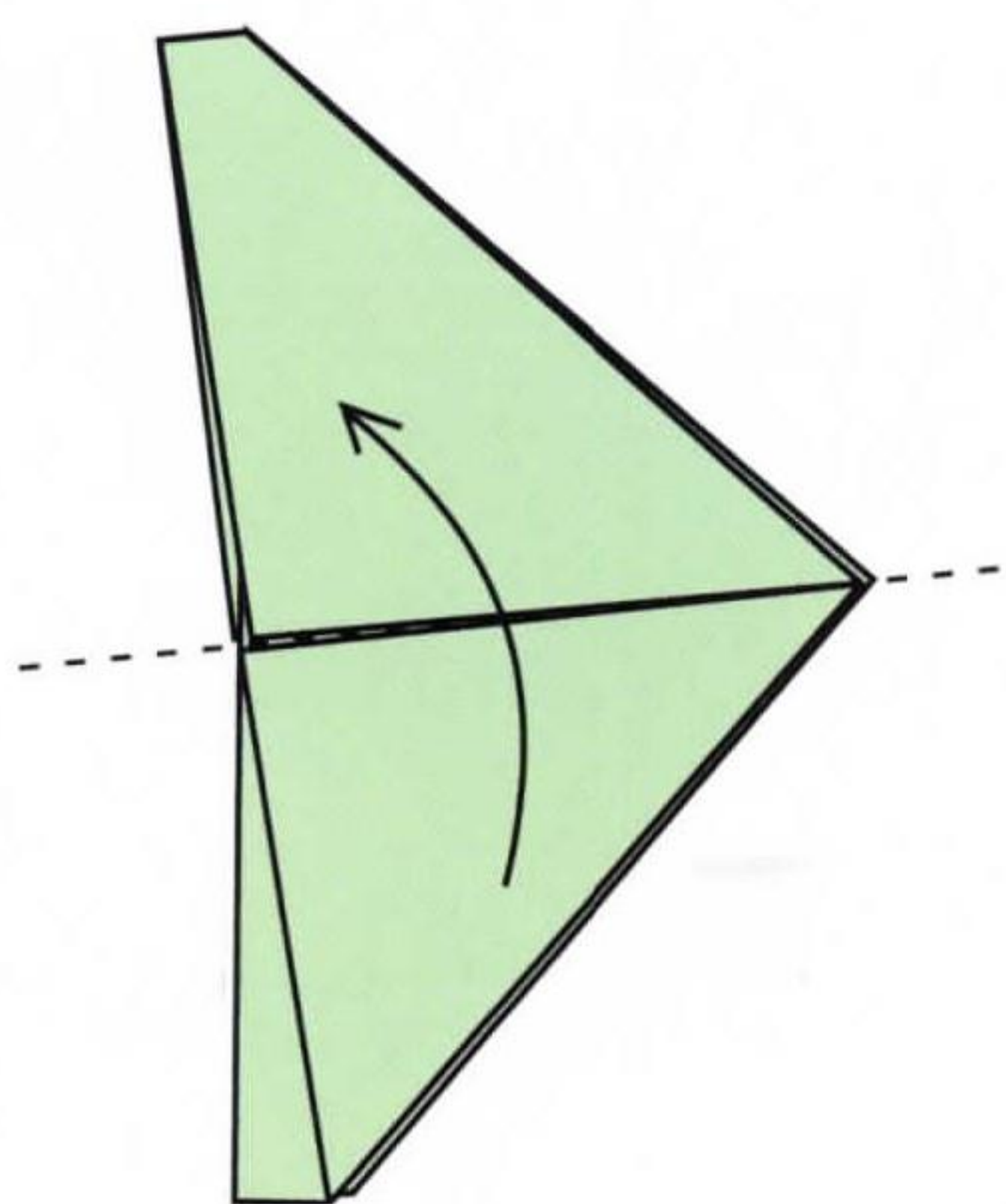
9. Notice that the corners from the top flaps will not intersect at the vertical crease. Open the upper corners back out.



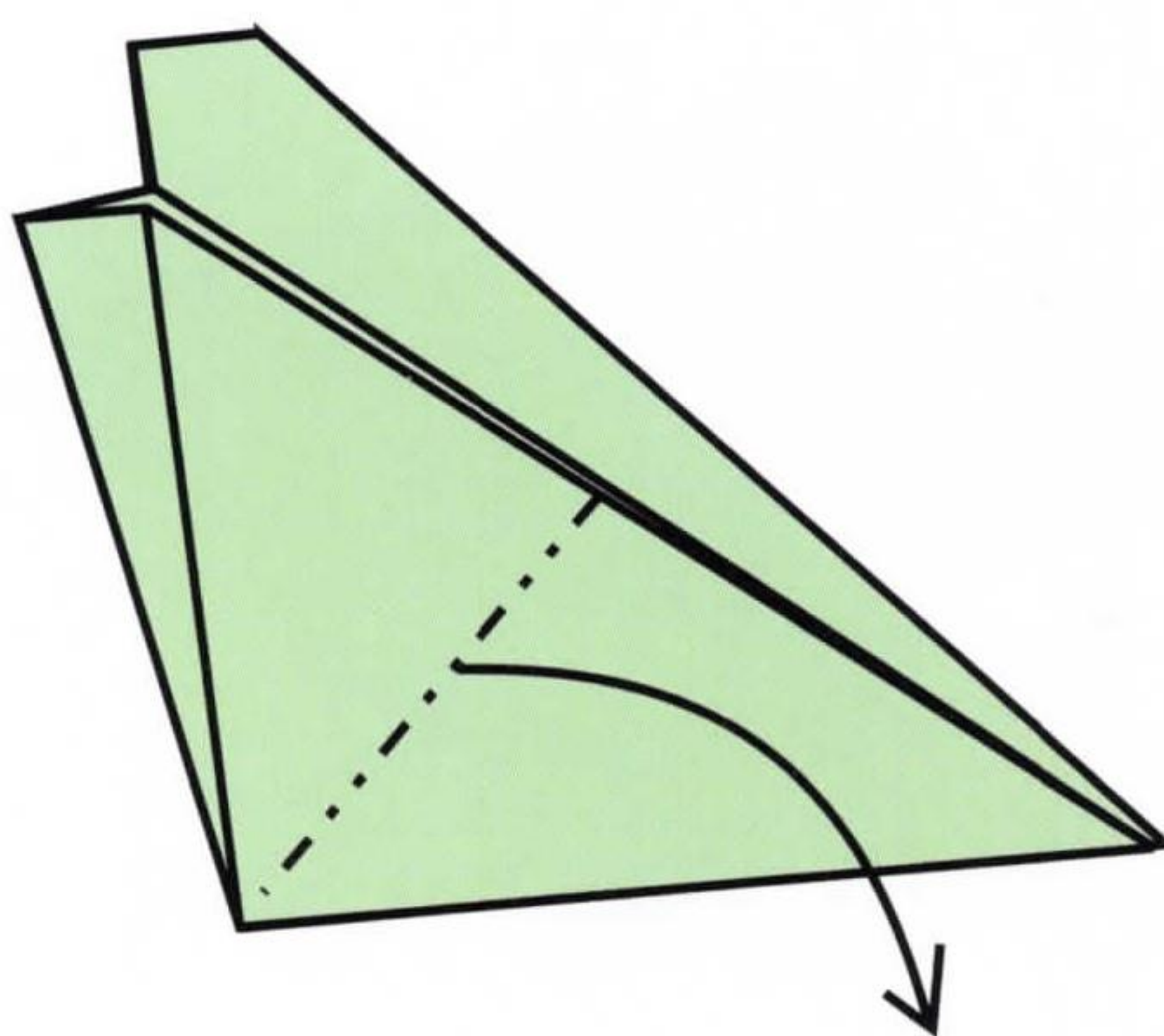
10. Return the top corners down while keeping the cut top edges on the outside and in the center. Flatten these edges to the left.



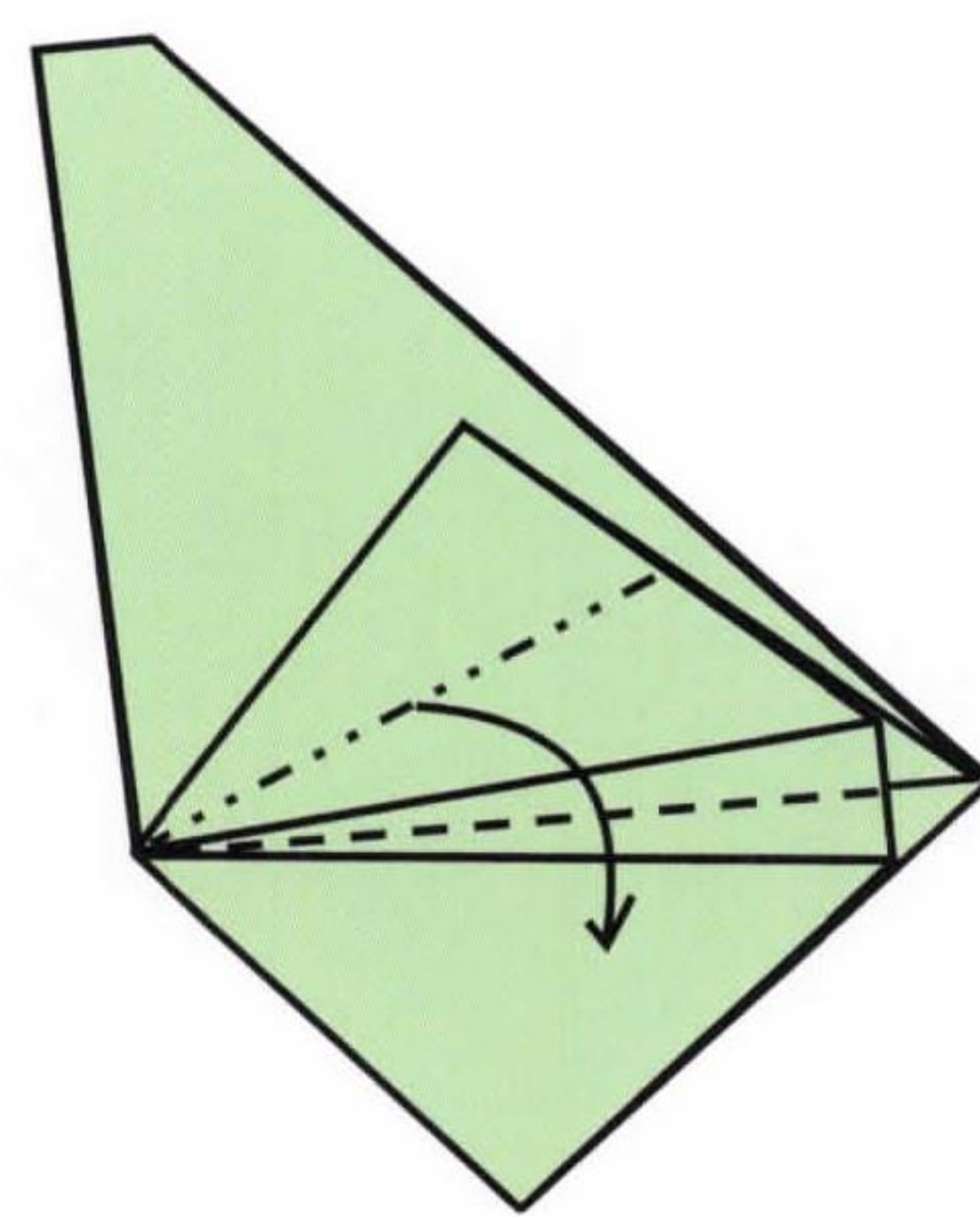
11. Mountain-fold the centerline, swinging the left side behind the right.



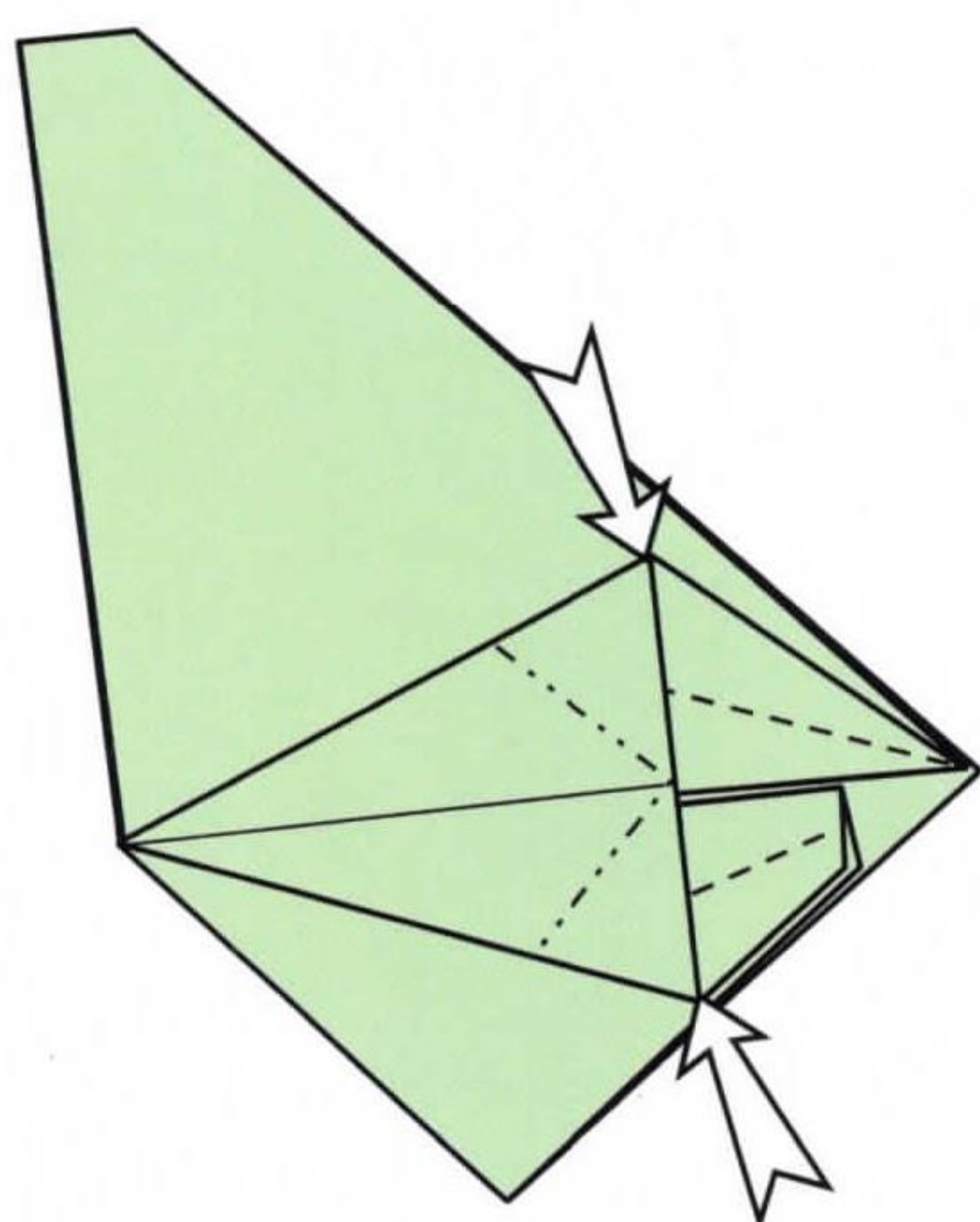
12. Valley-fold the lower flap upward.



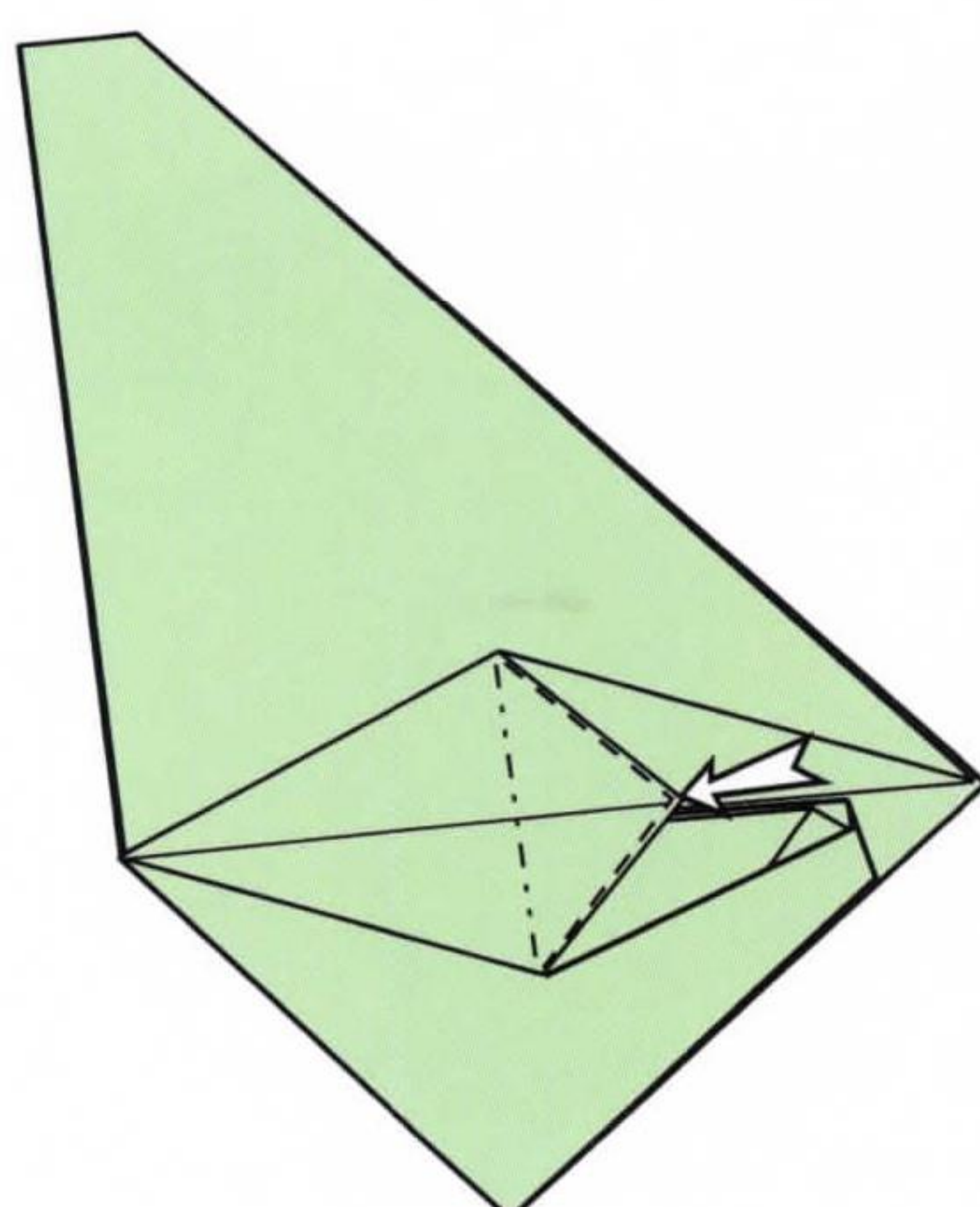
13. Squash the front flap downward.



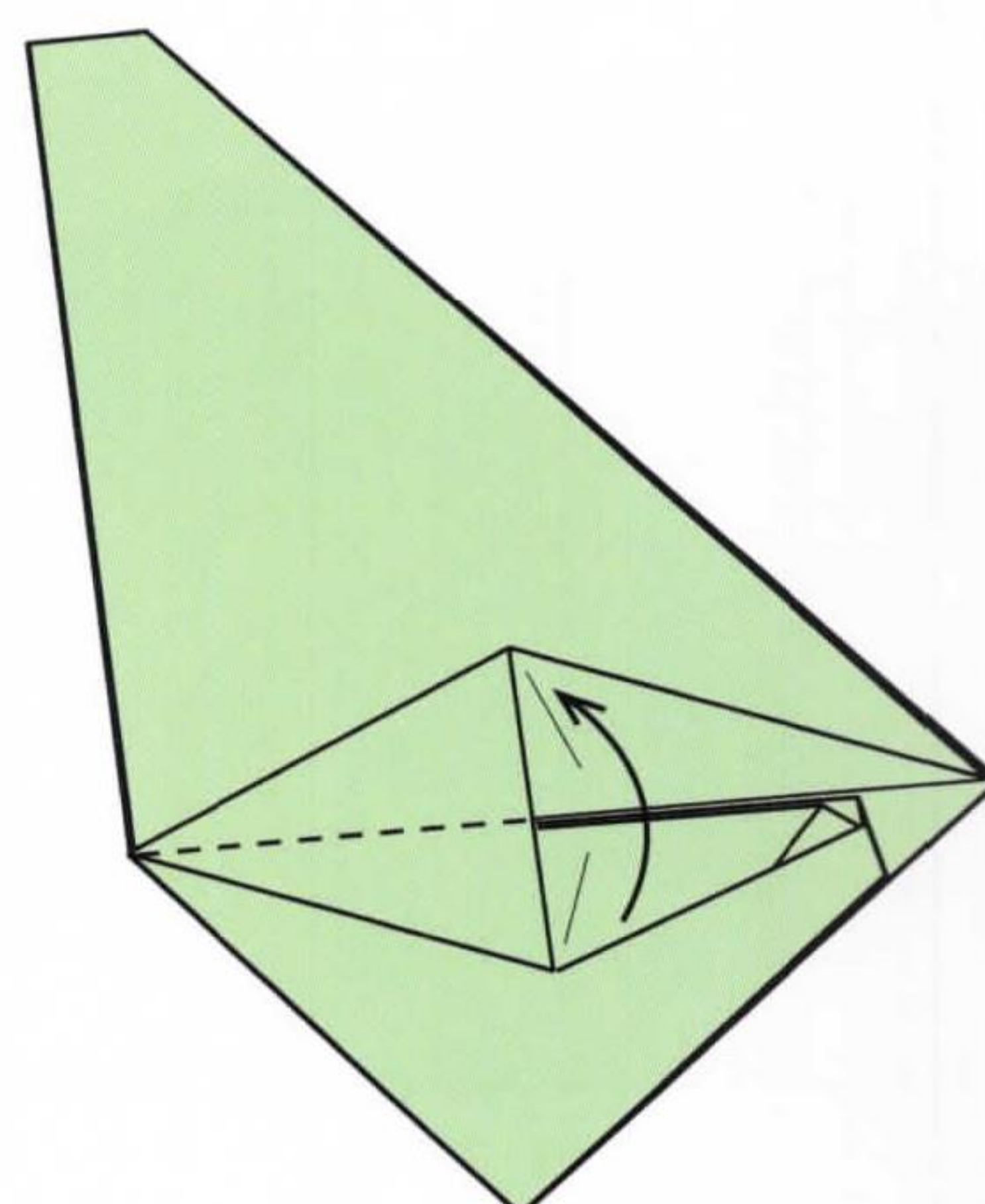
14. Stand up the top flap and squash it flat.



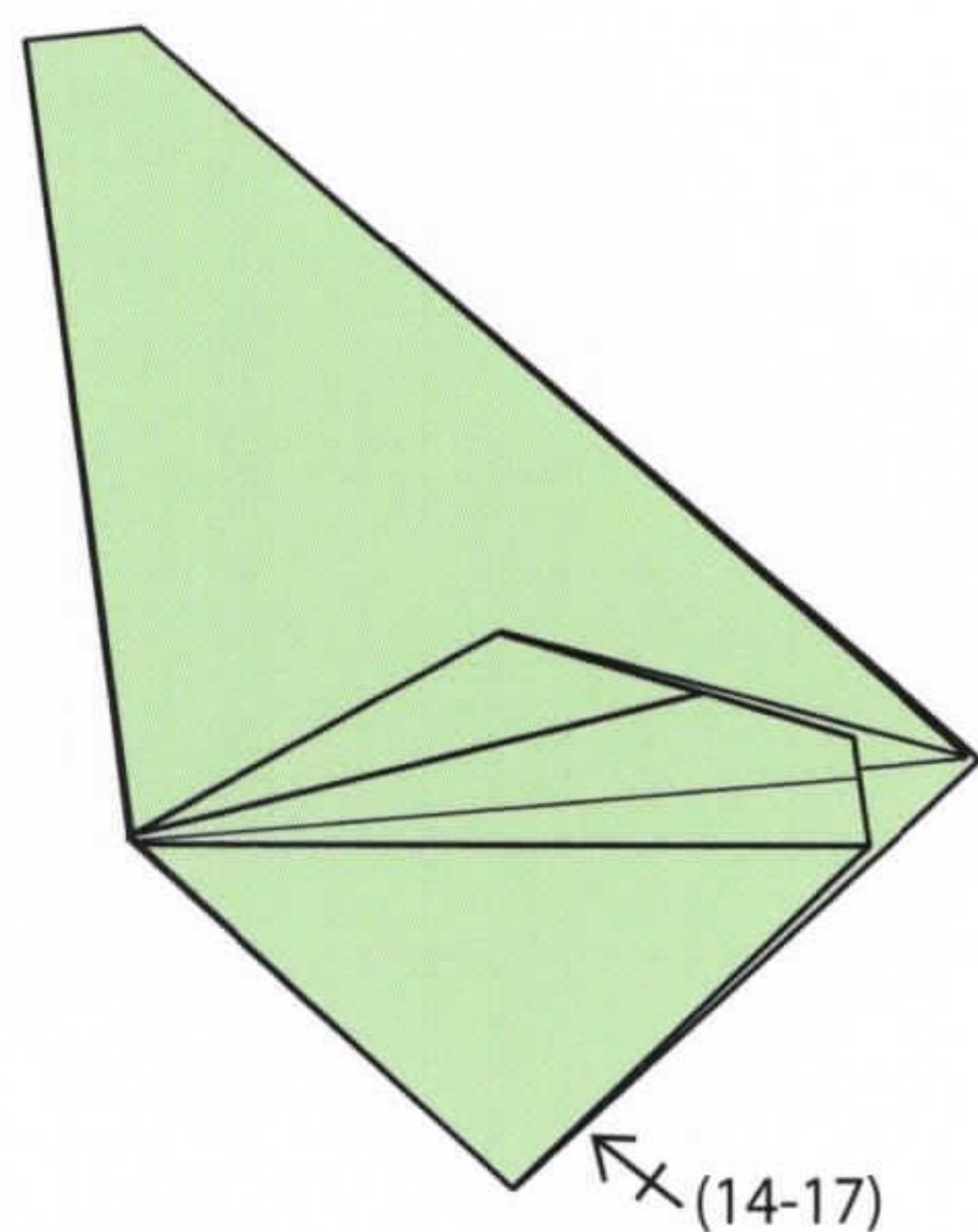
15. Inside-reverse-fold the points at the arrows.



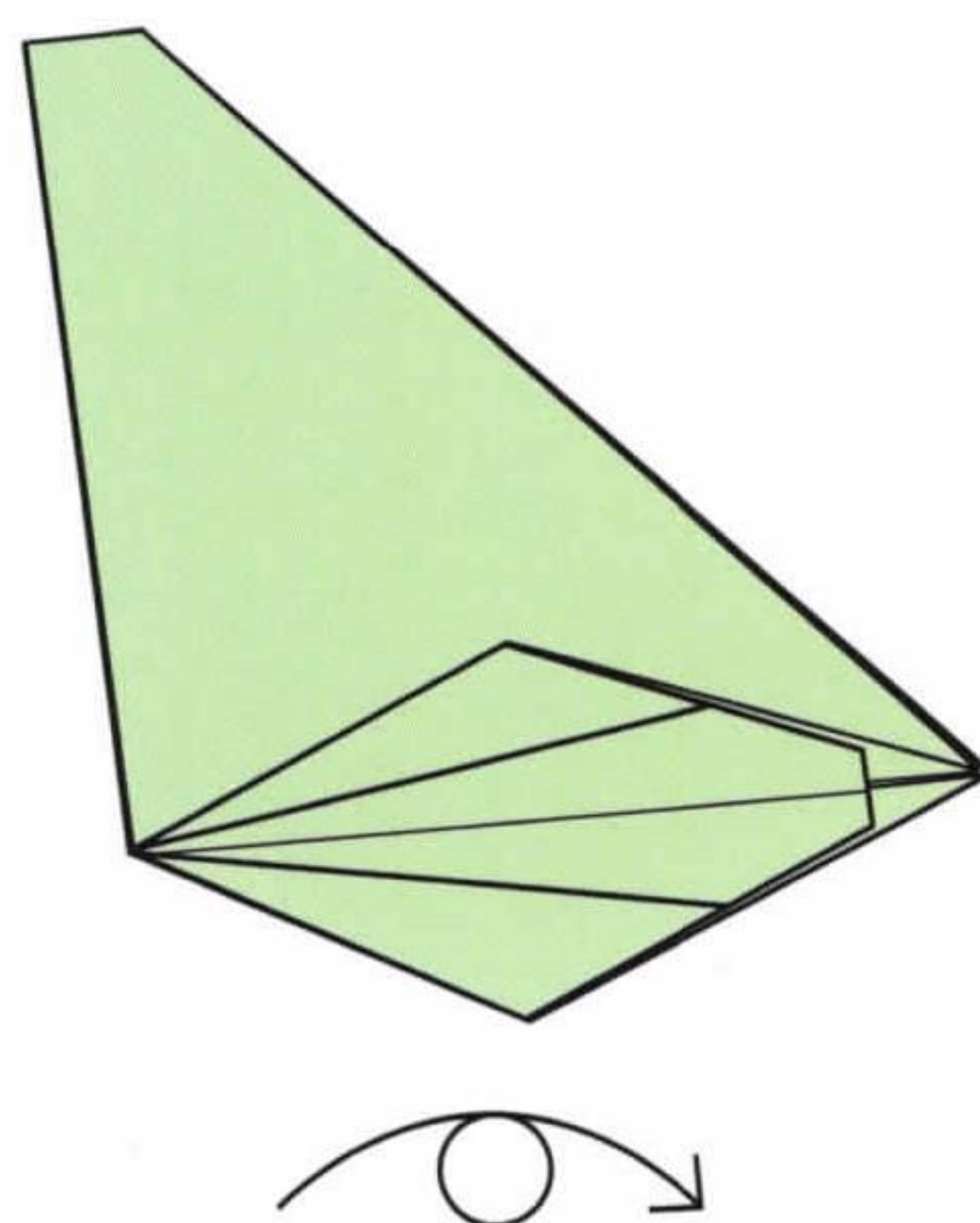
16. Tuck the triangle inside.



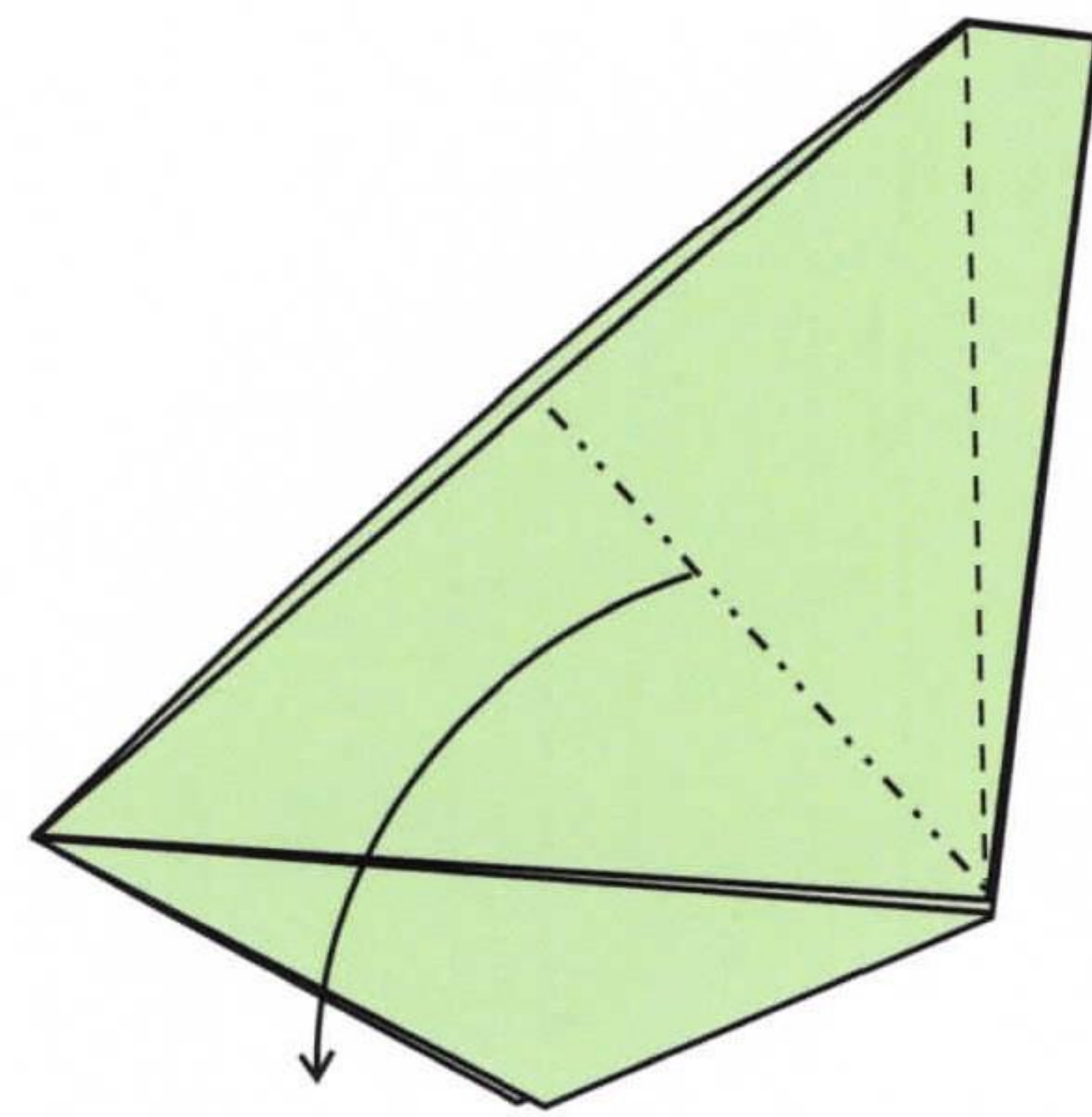
17. Bring the lower flap up over the upper flap.



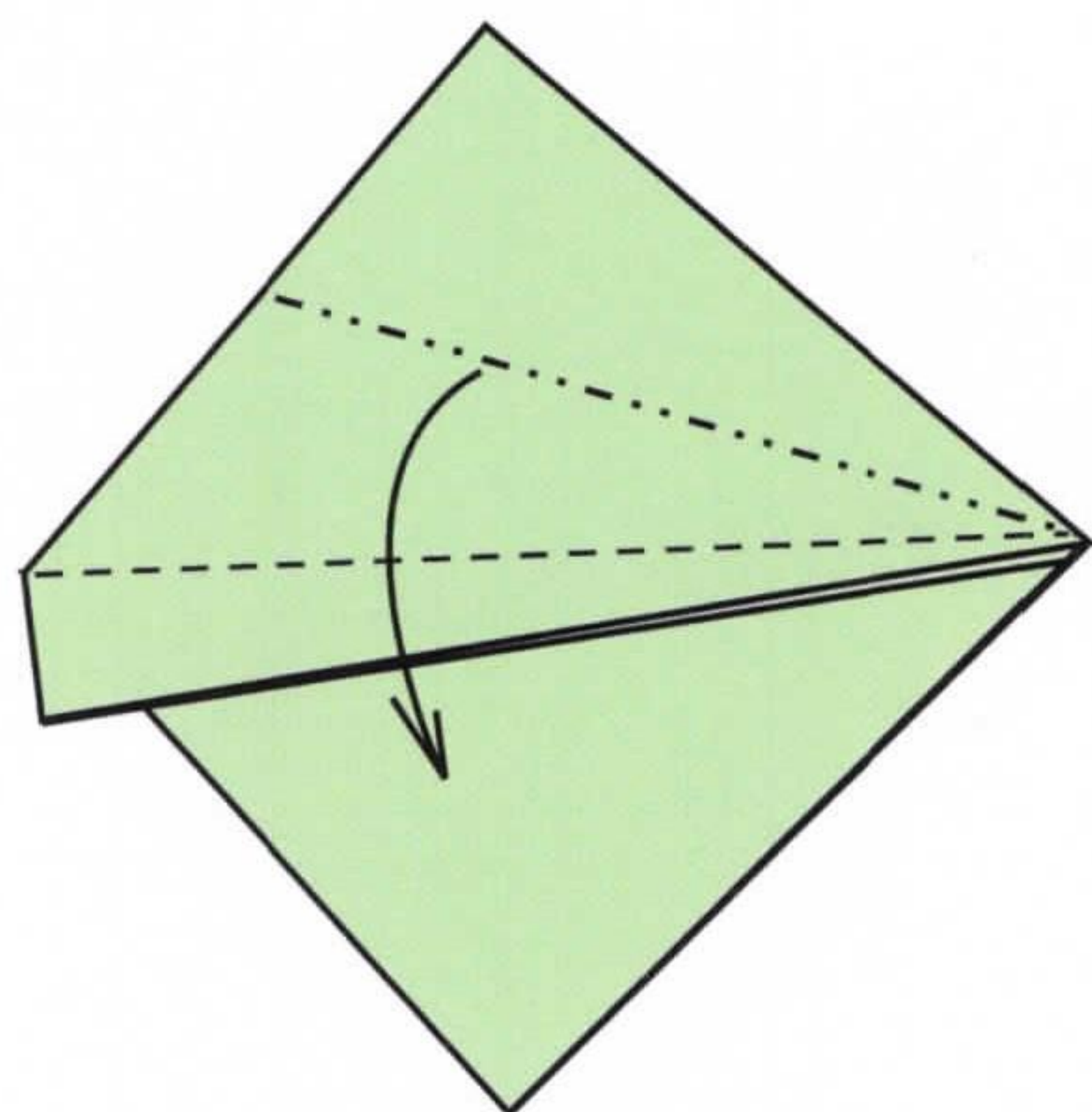
18. Repeat steps 14 through 17 with the bottom of the flap.



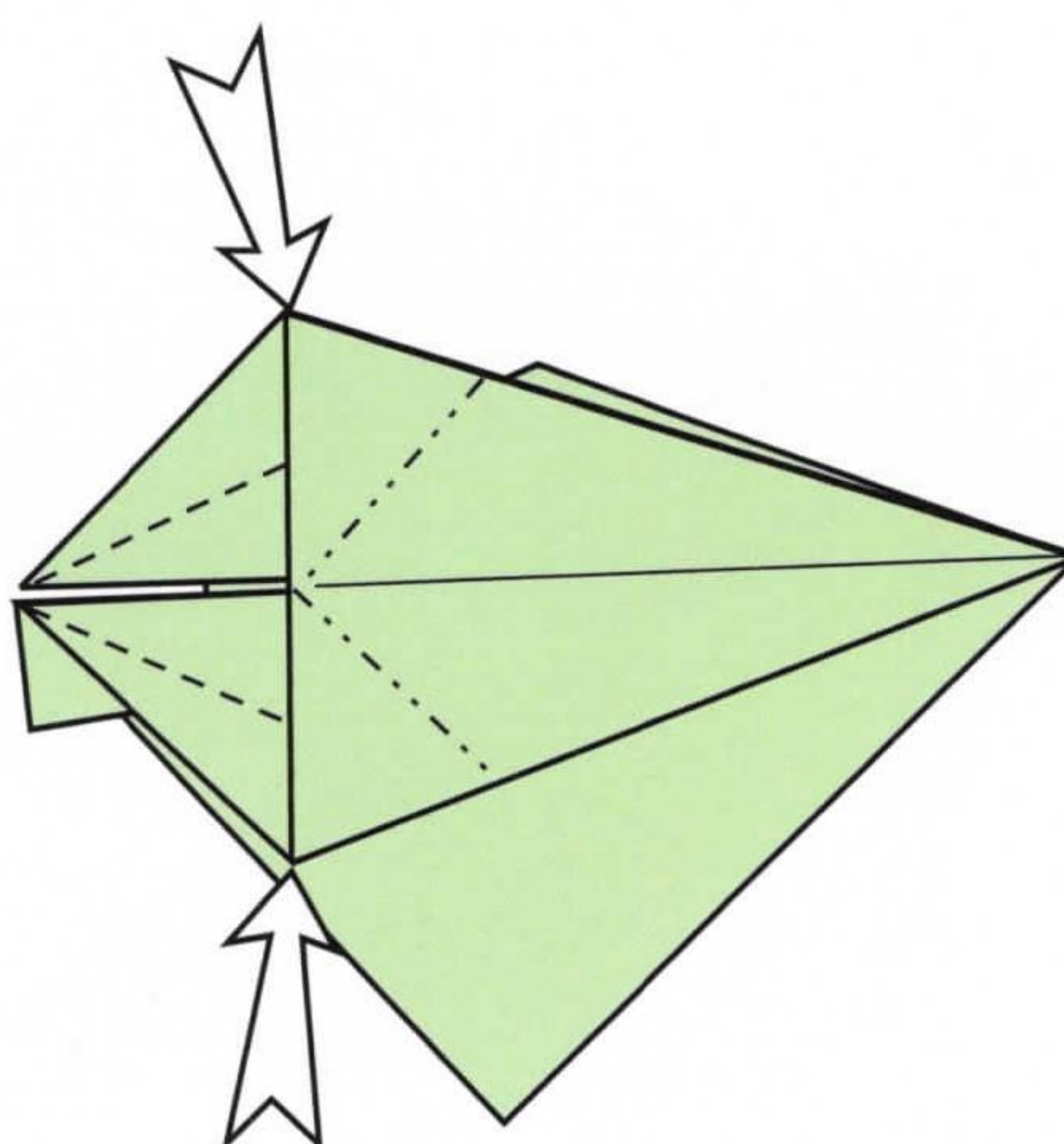
19. Turn the model over, left to right.



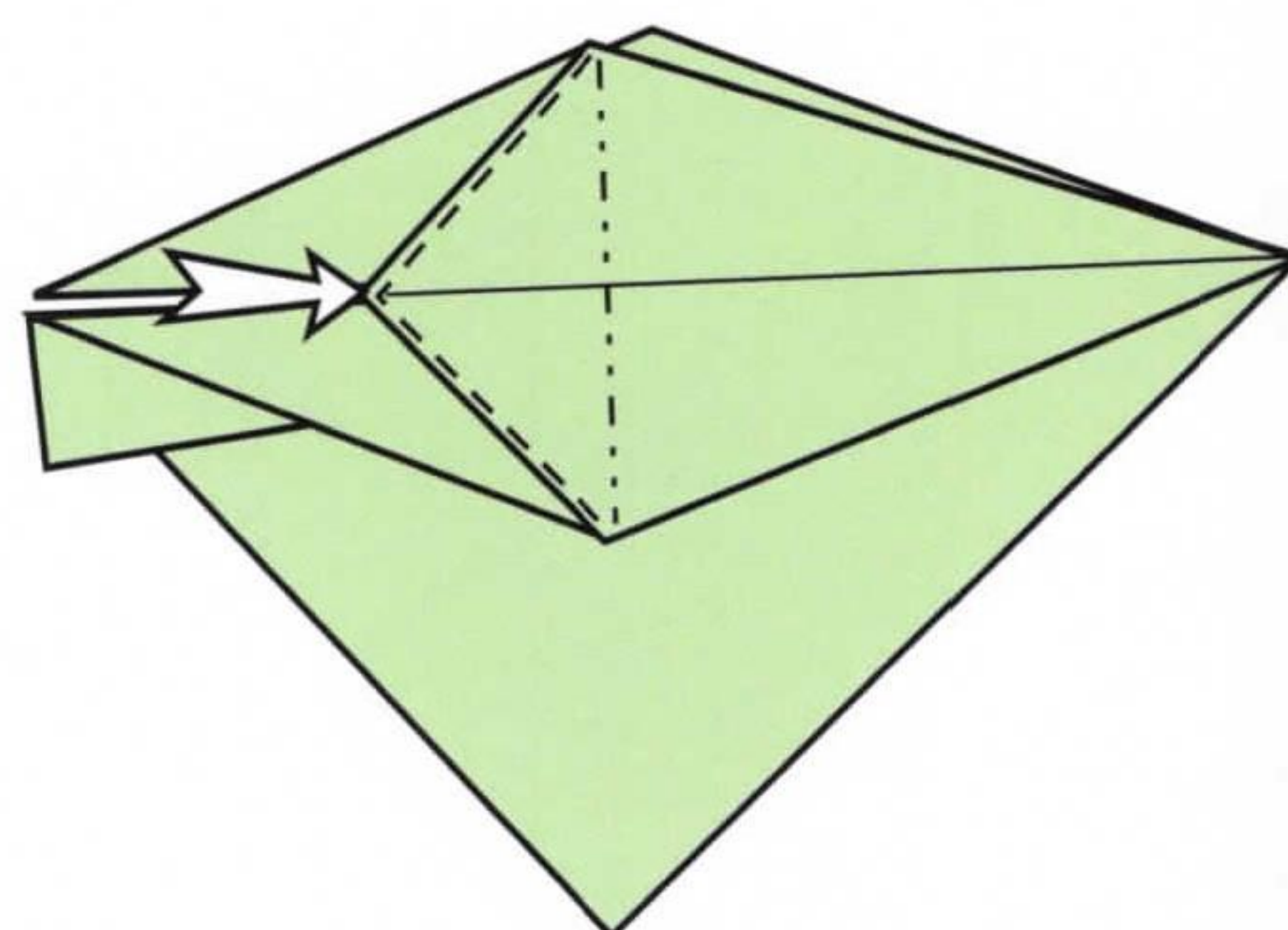
20. Squash the upper flap while holding the small flap closed, laying it downward.



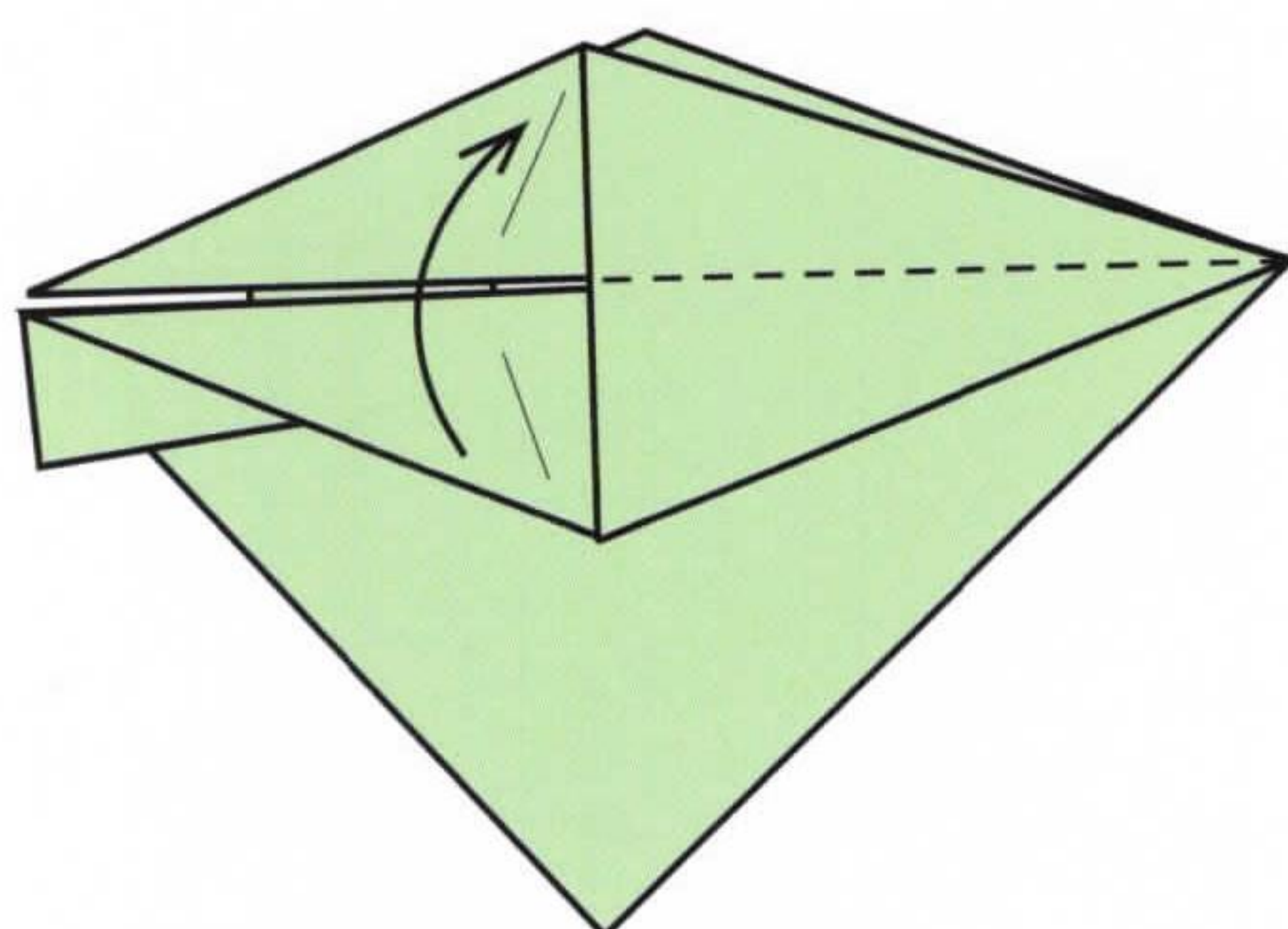
21. Squash the upper flap downward.



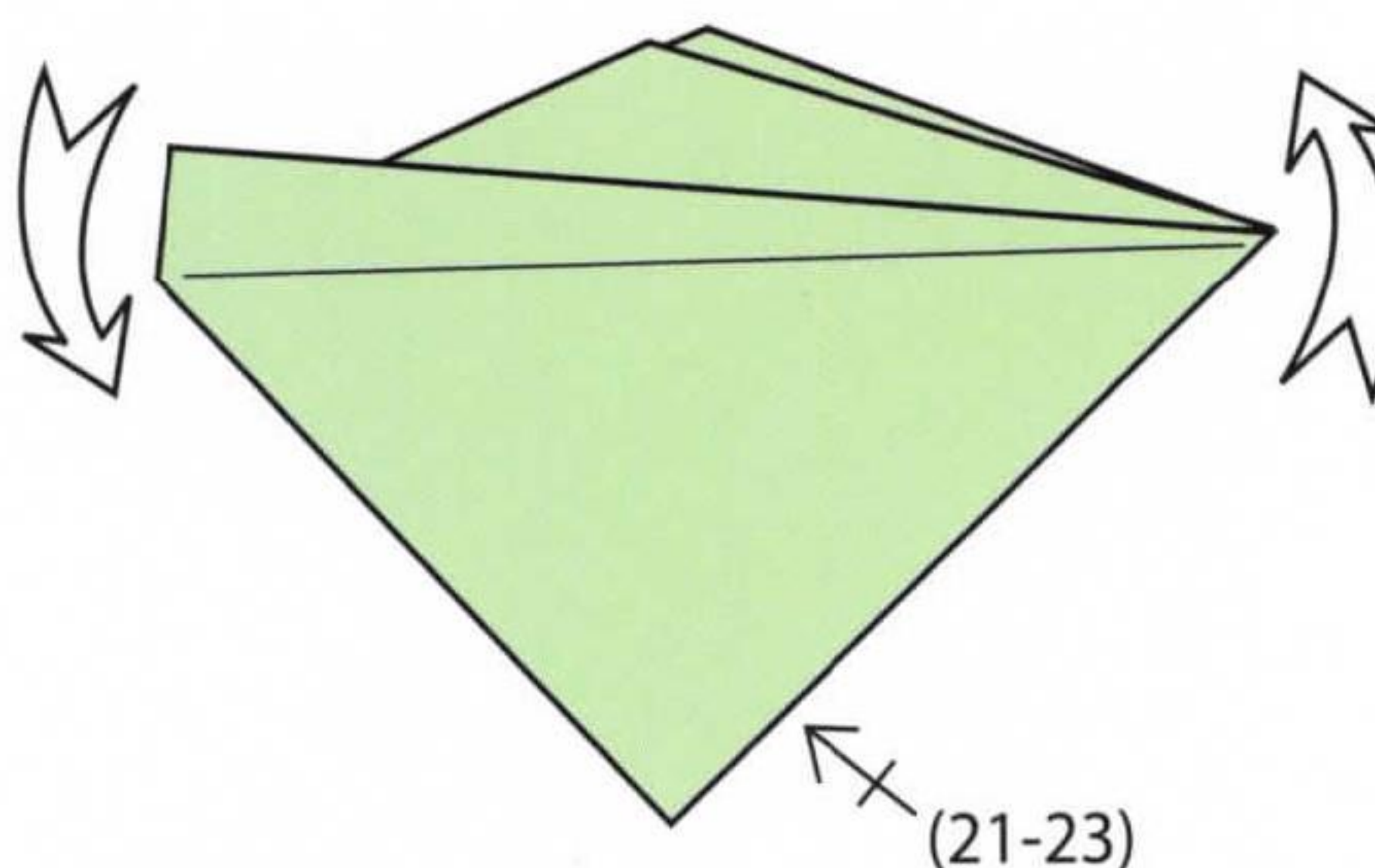
22. Inside-reverse-fold the points at the arrows.



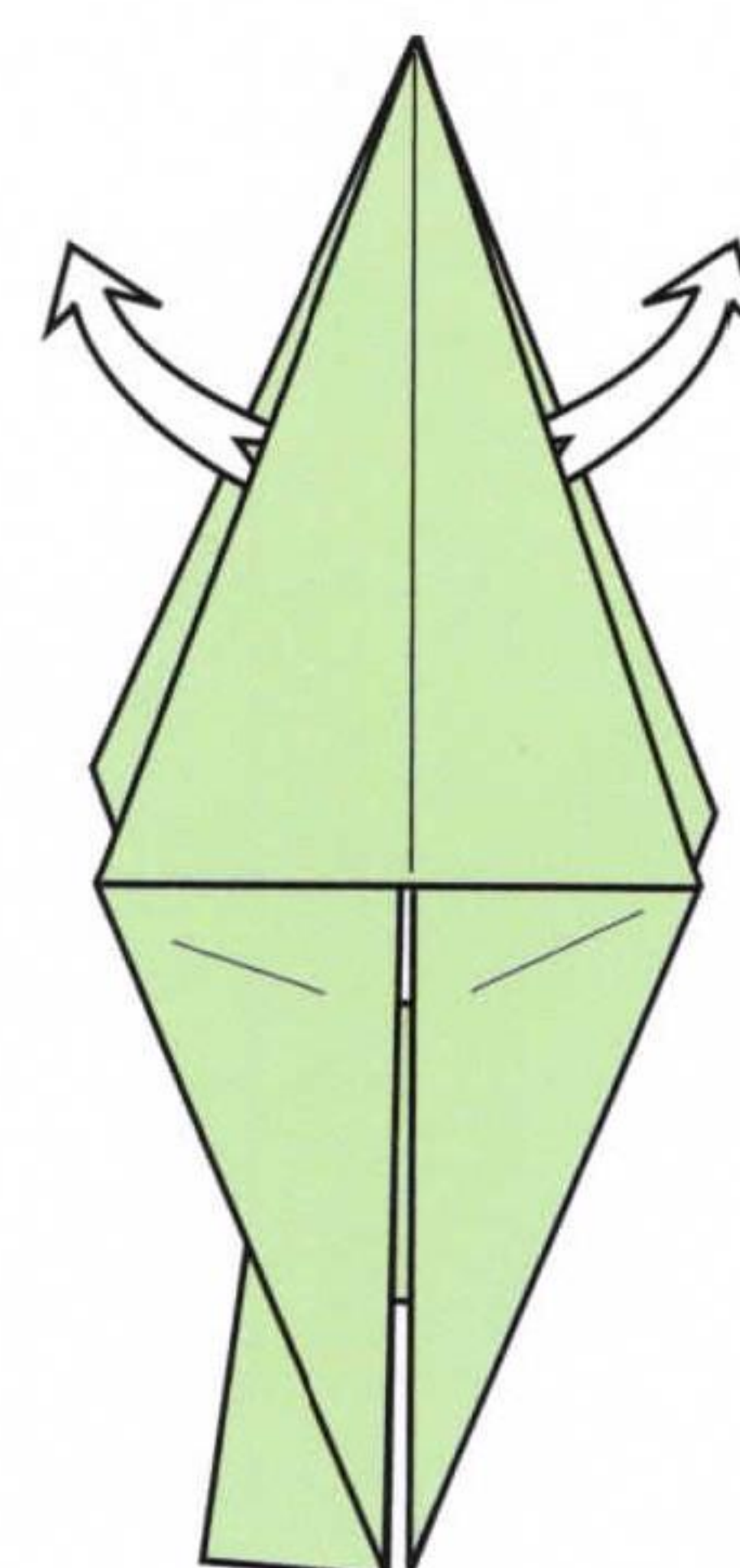
23. Tuck the triangle inside.



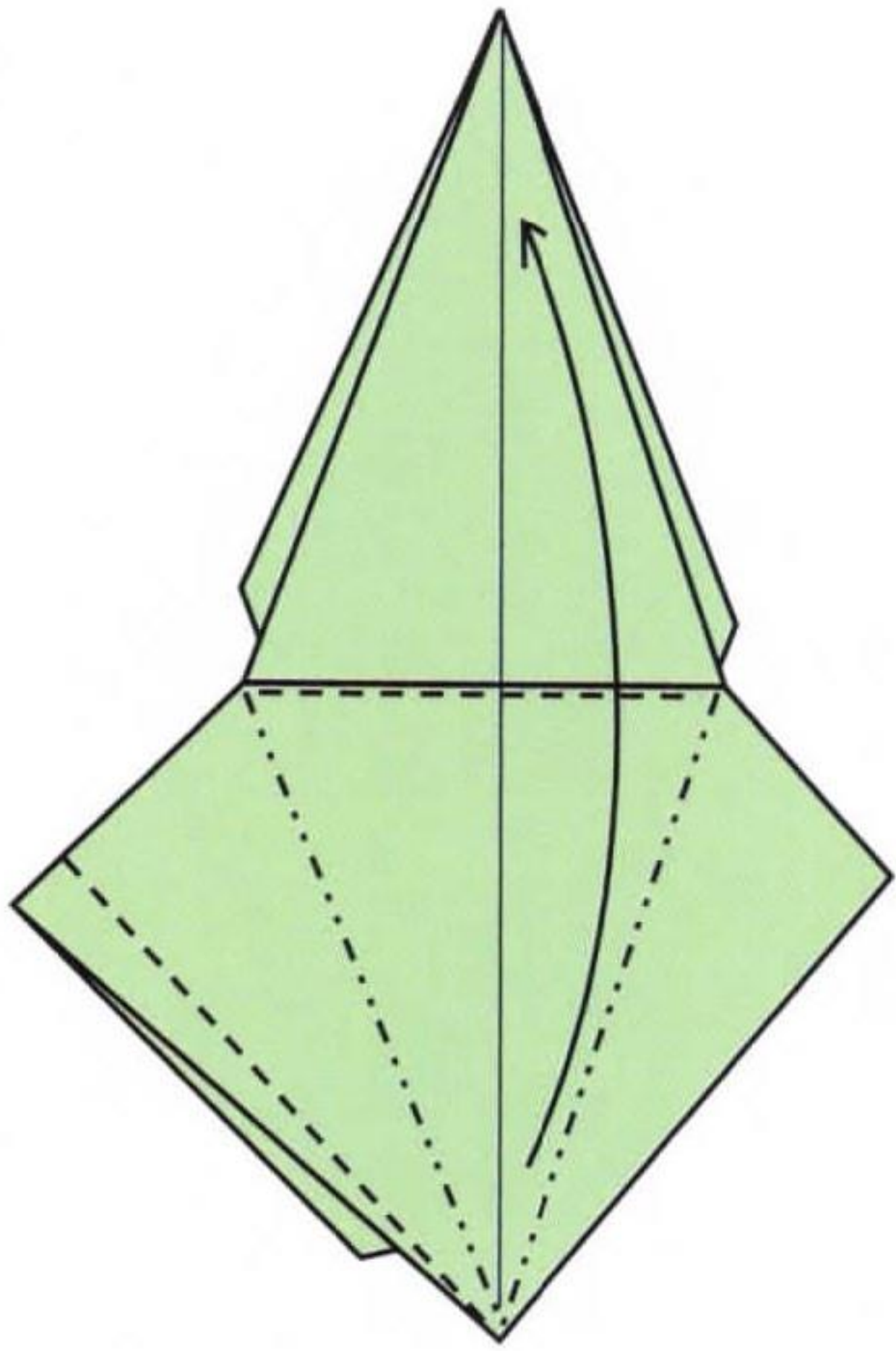
24. Bring the lower flap up over the upper flap.



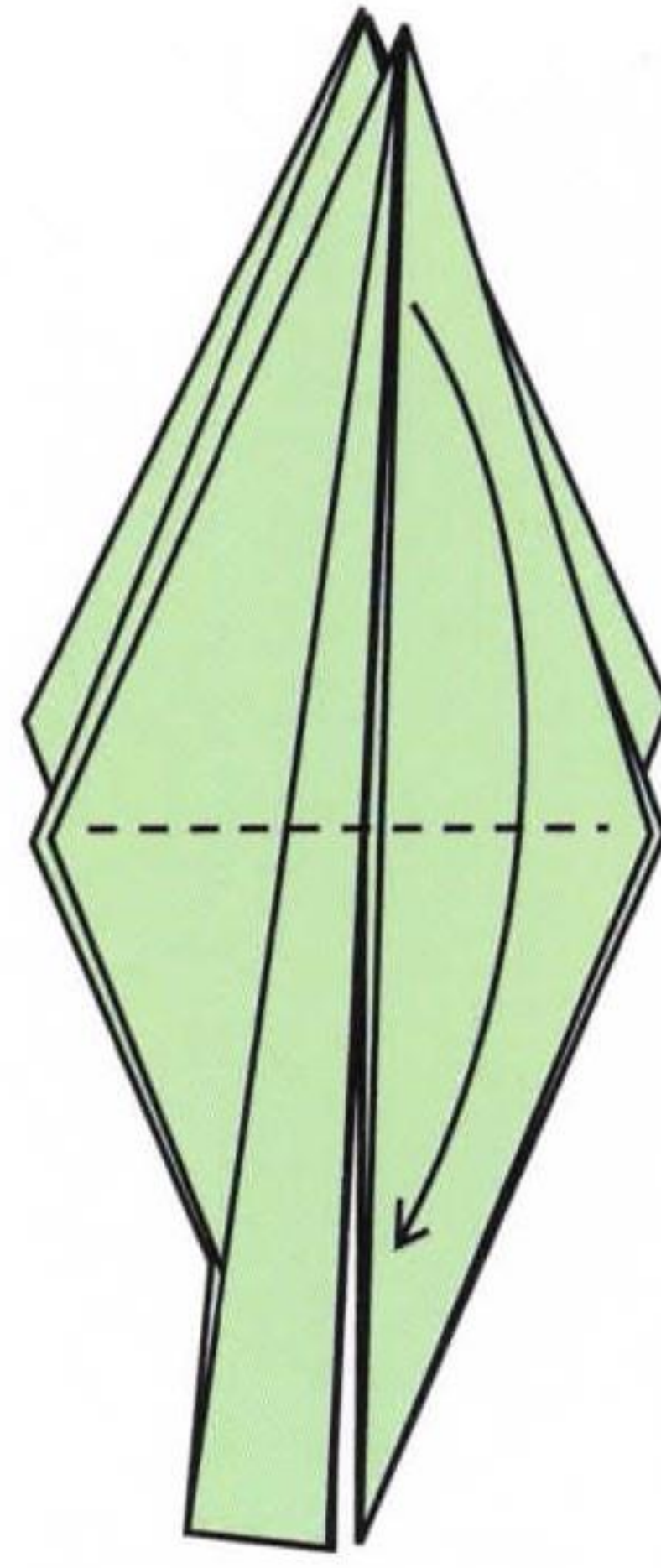
25. Repeat steps 21 through 23 with the other side flap. Rotate the model 90 degrees.



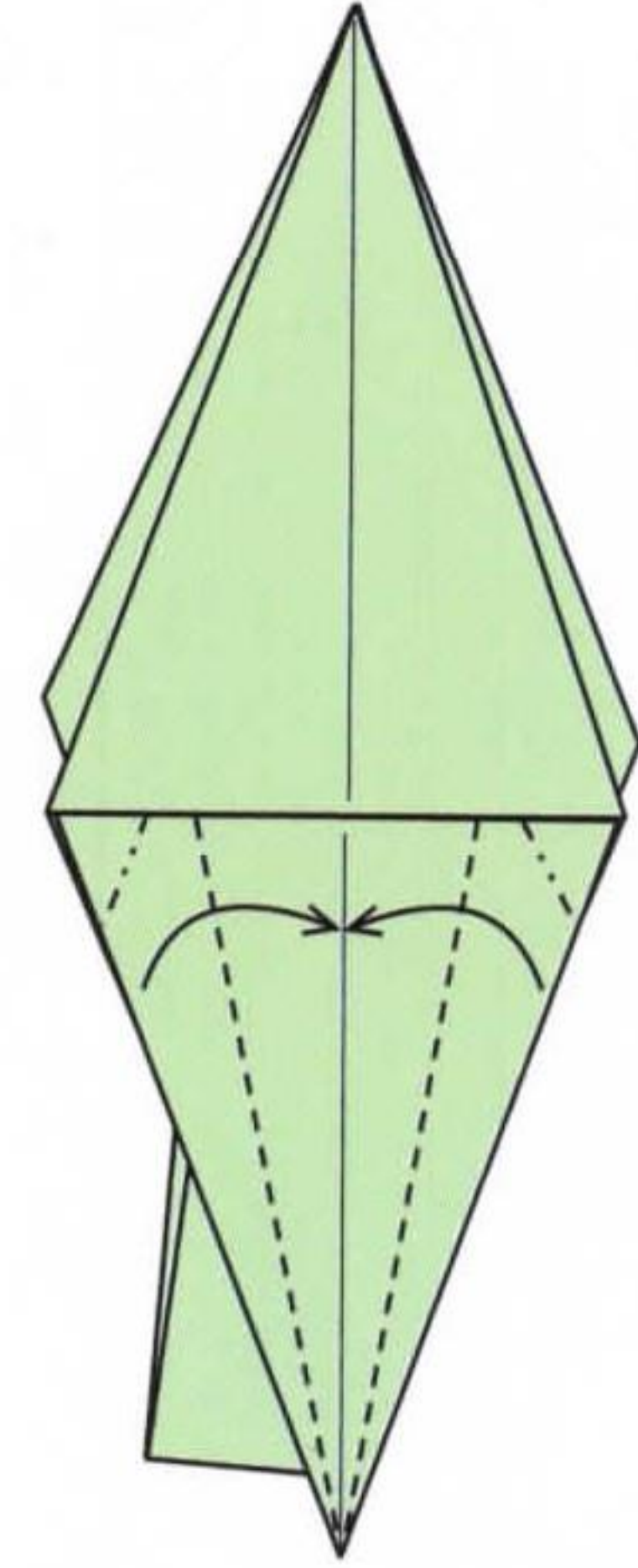
26. Find the free layers of paper behind the front top corner. Pull them out and bring them to the front. This will release them, forming a new flap in front. Move the flap down and flatten. Look ahead at step 27 for the shape.



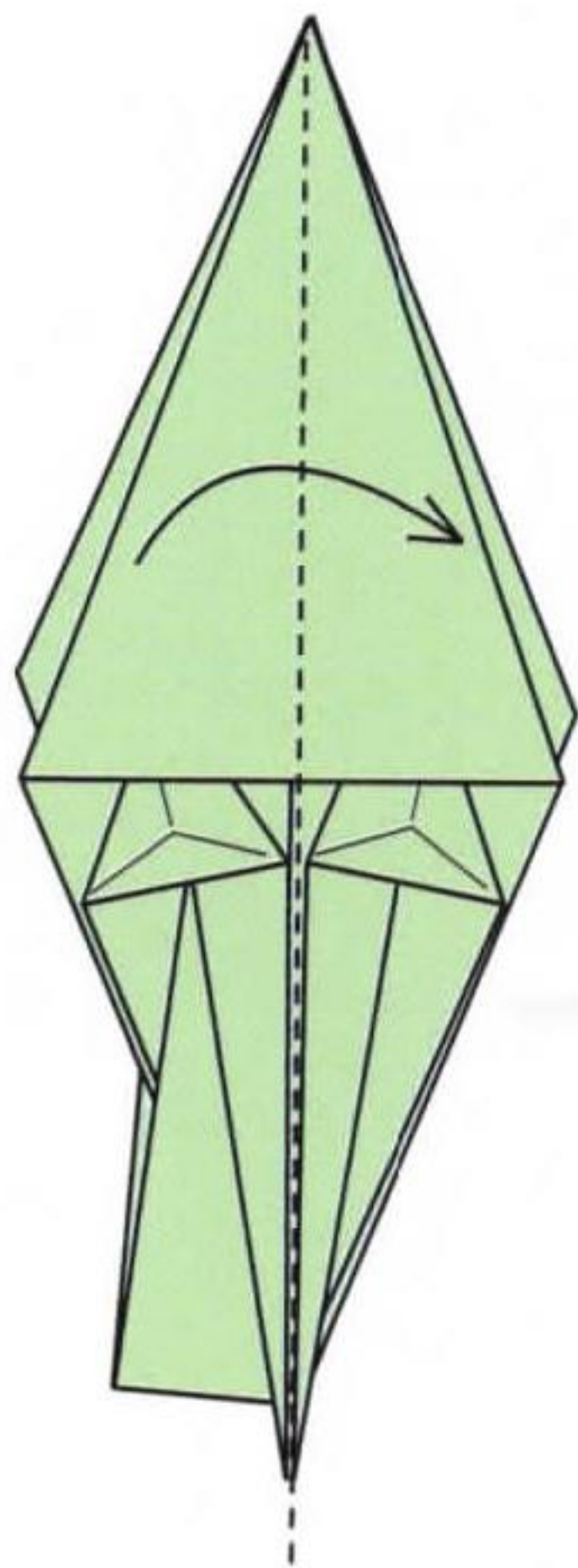
27. Petal-fold up.



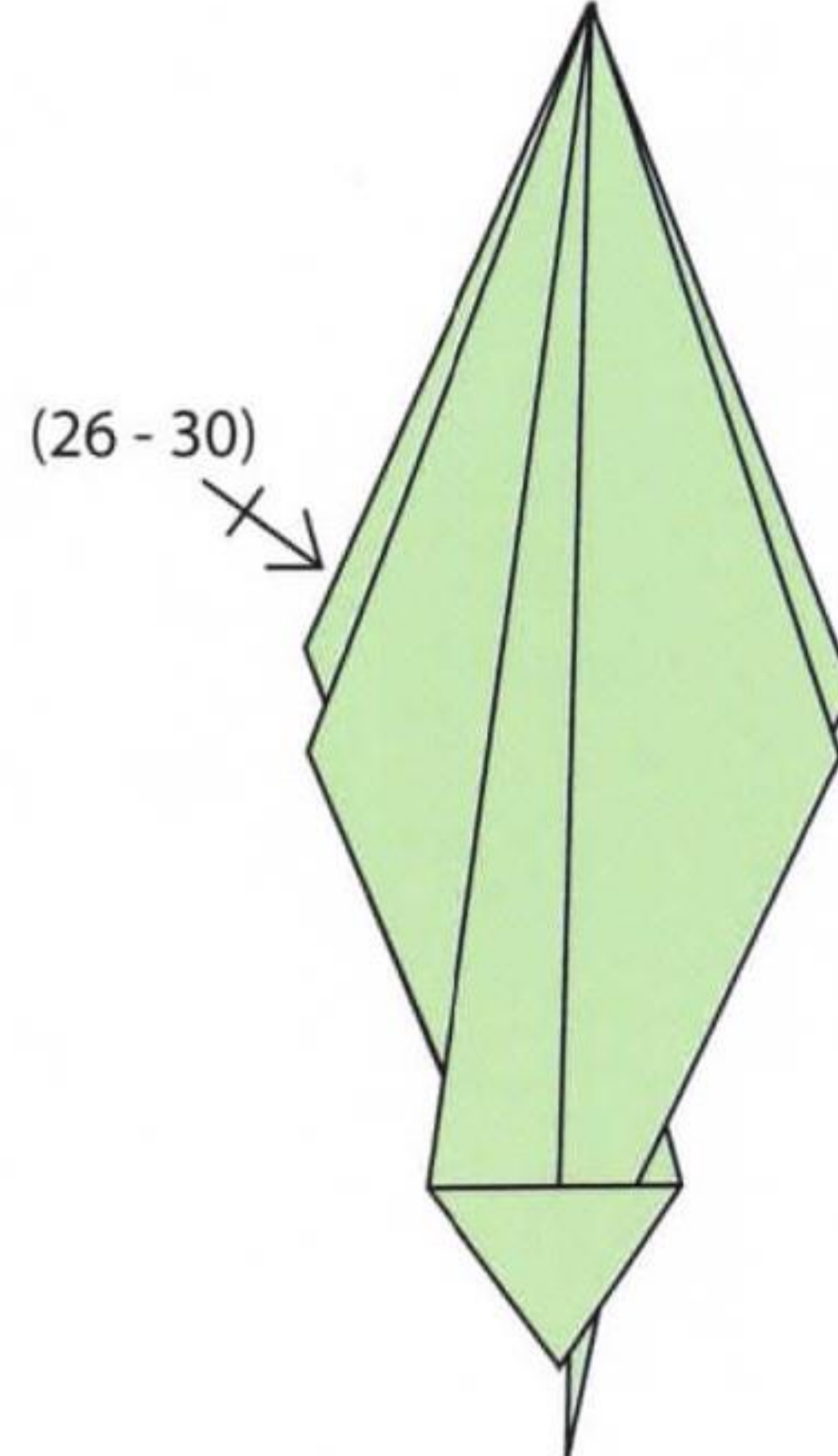
28. Fold the narrowed point downward.



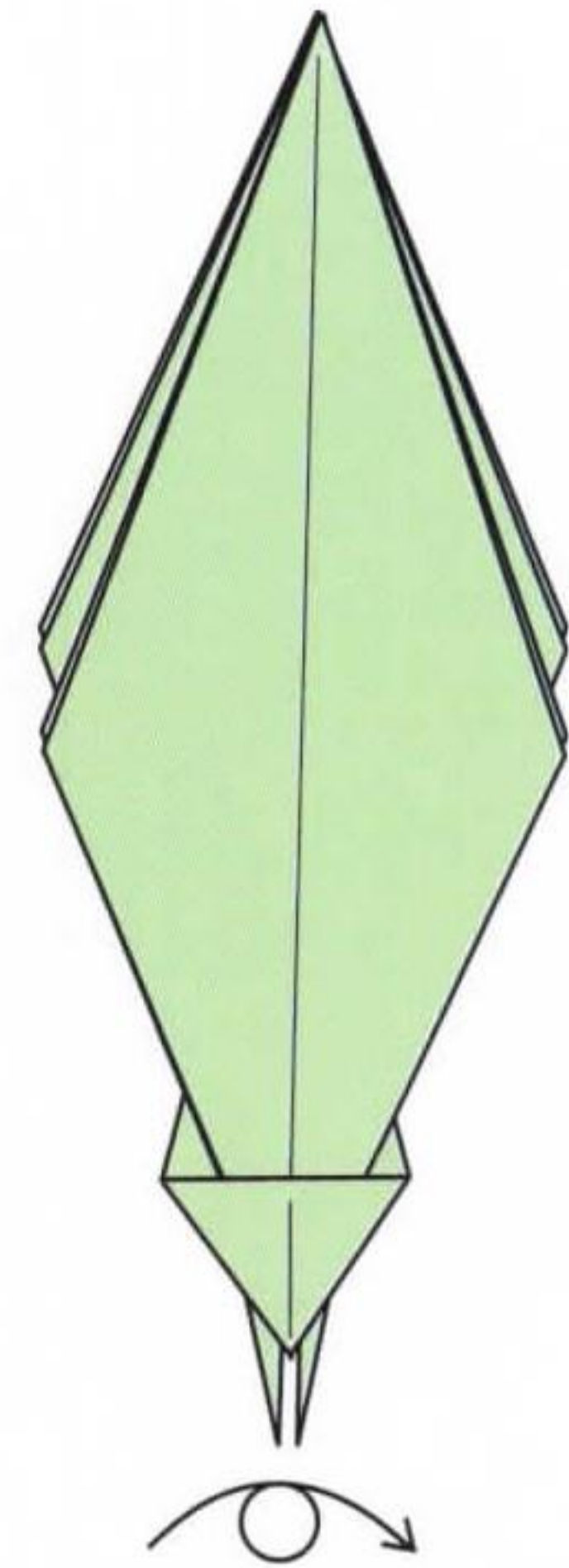
29. Fold the edges in, squashing flat the shapes under the top layer.



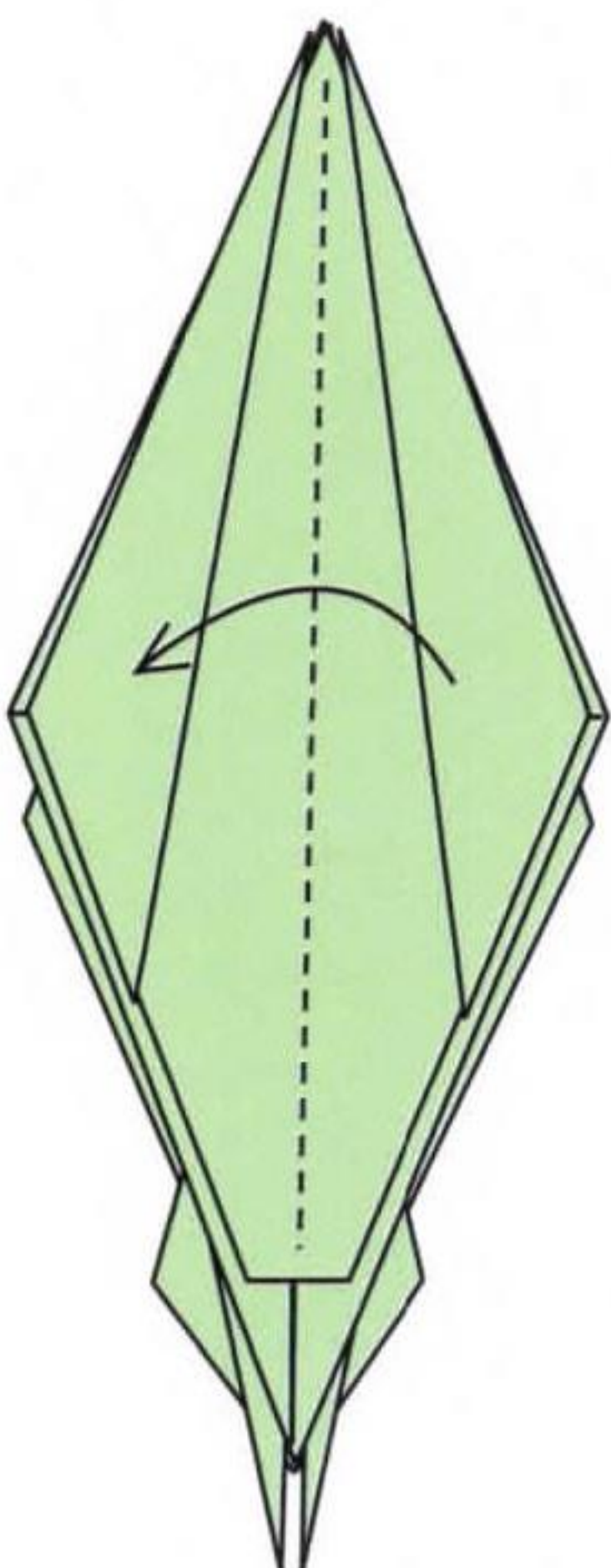
30. Flip the left layer to the right.



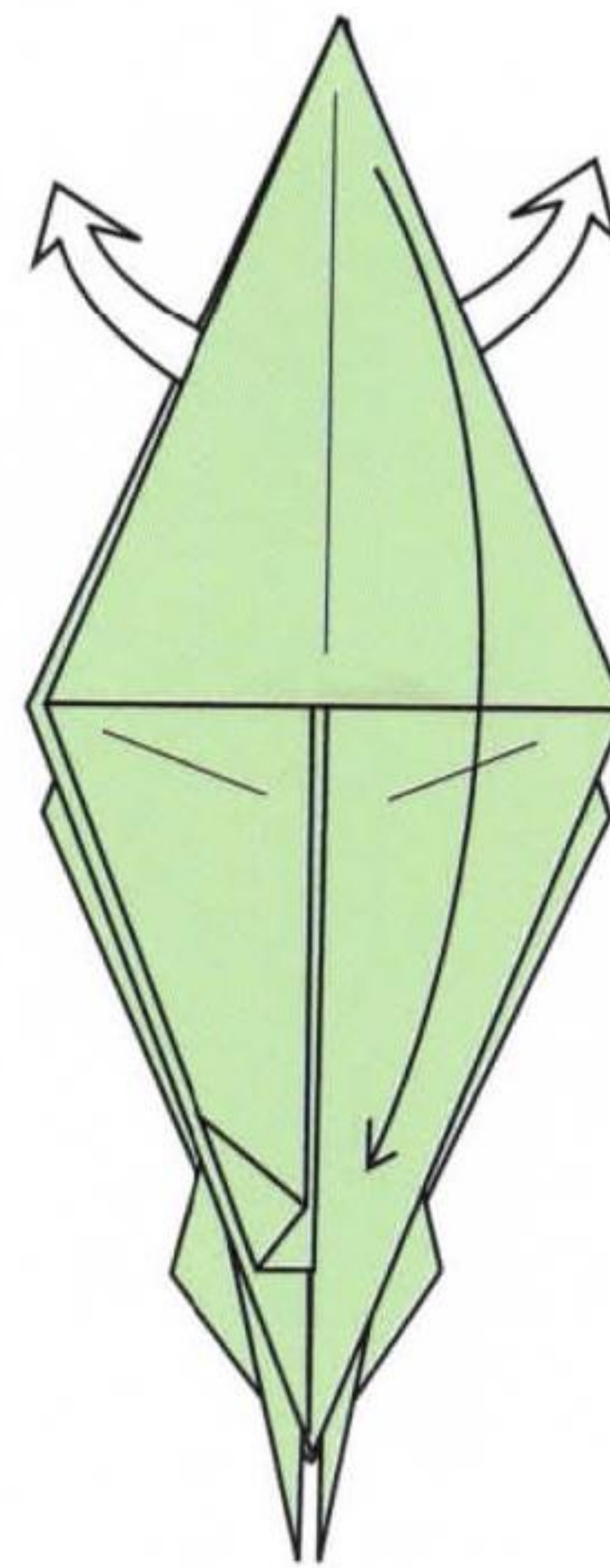
31. Repeat steps 26 through 30 on the right half of the model.



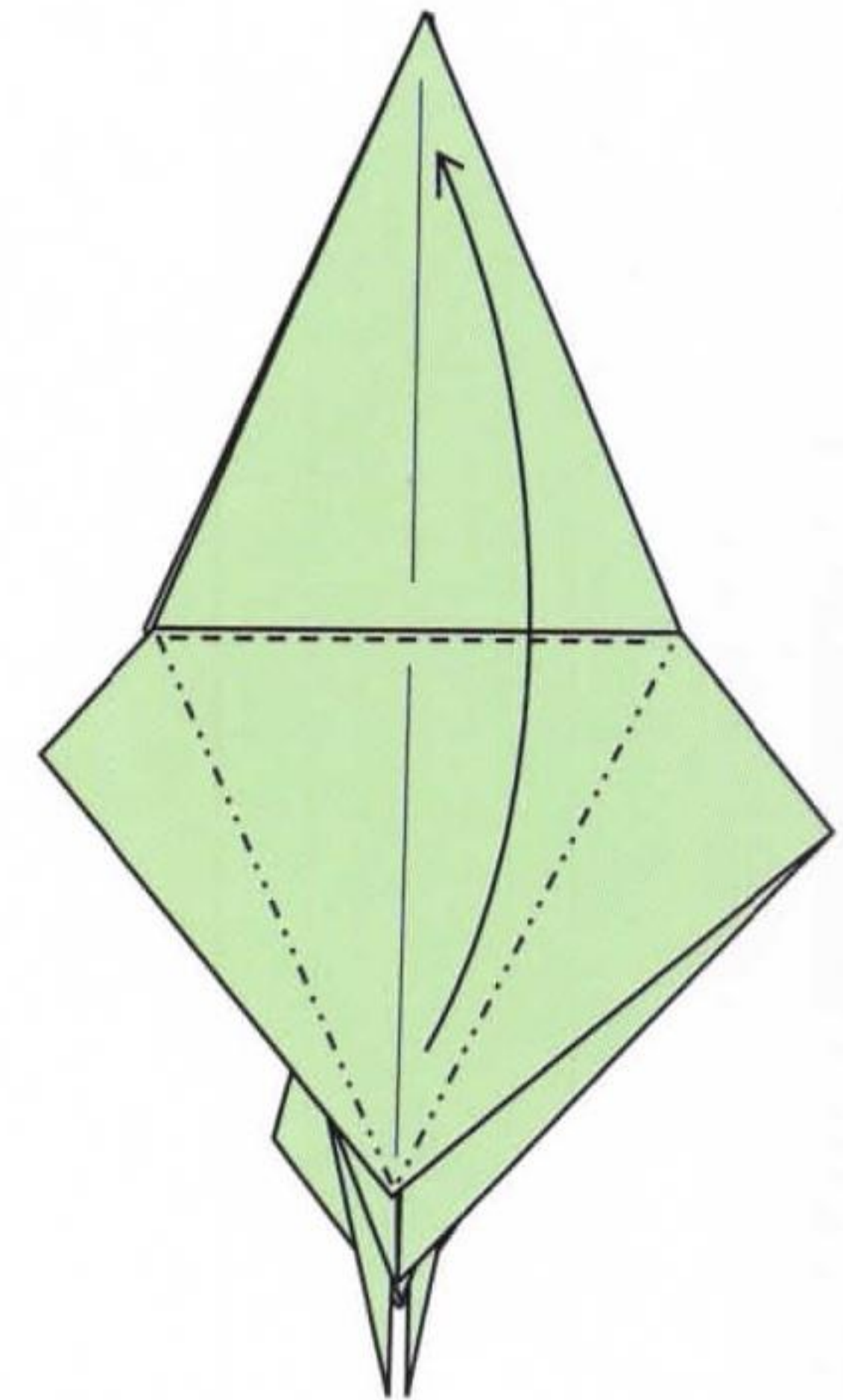
32. Arrange the layers symmetrically. Turn the model over, left to right.



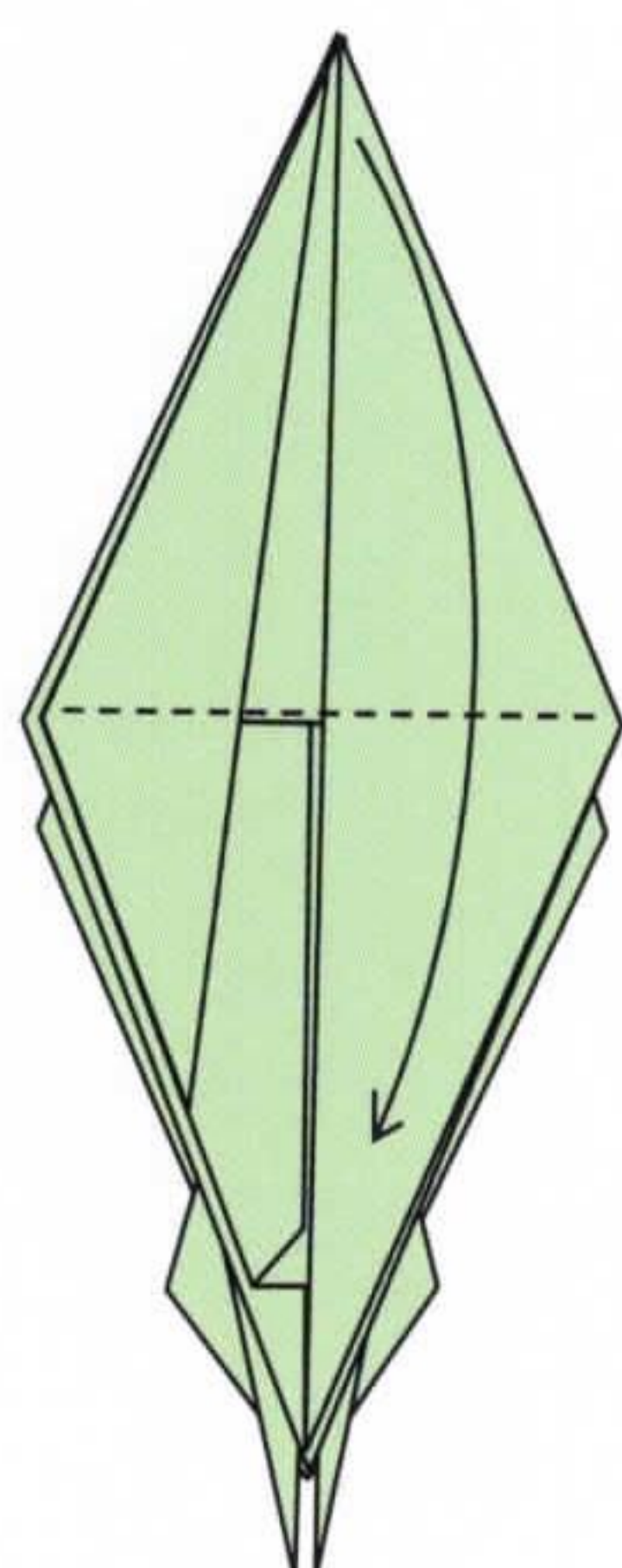
33. Flip the right layer to the left.



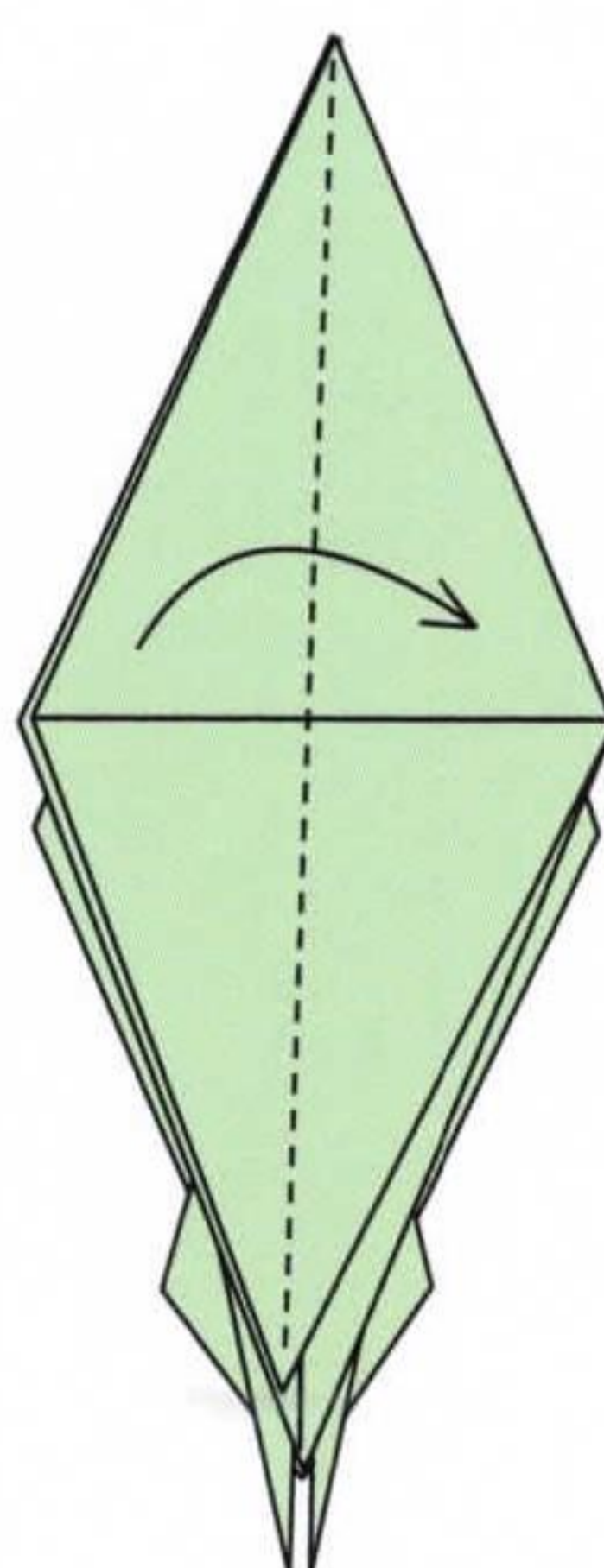
34. Pull out the layers from behind the top point and turn inside out.



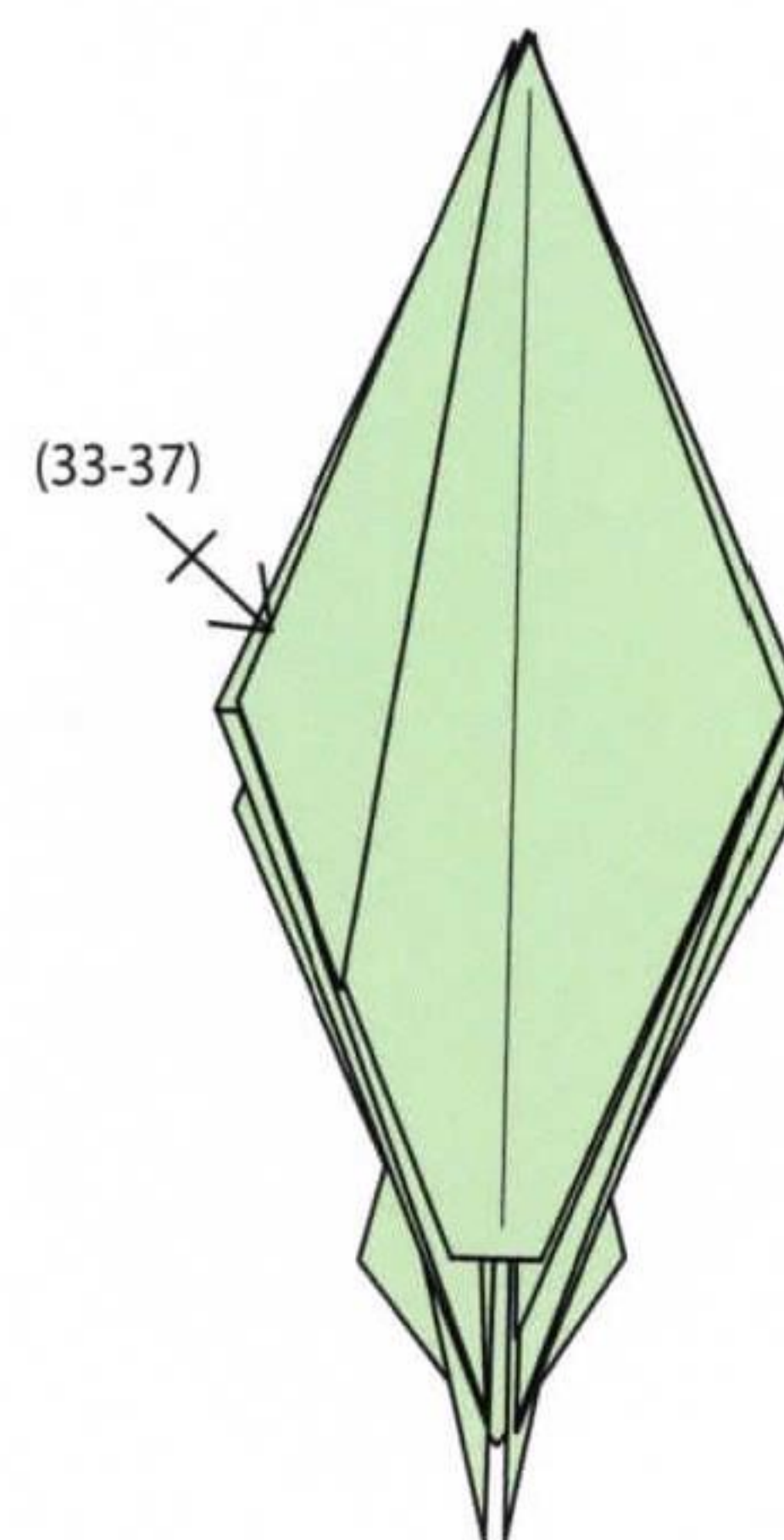
35. Petal-fold up.



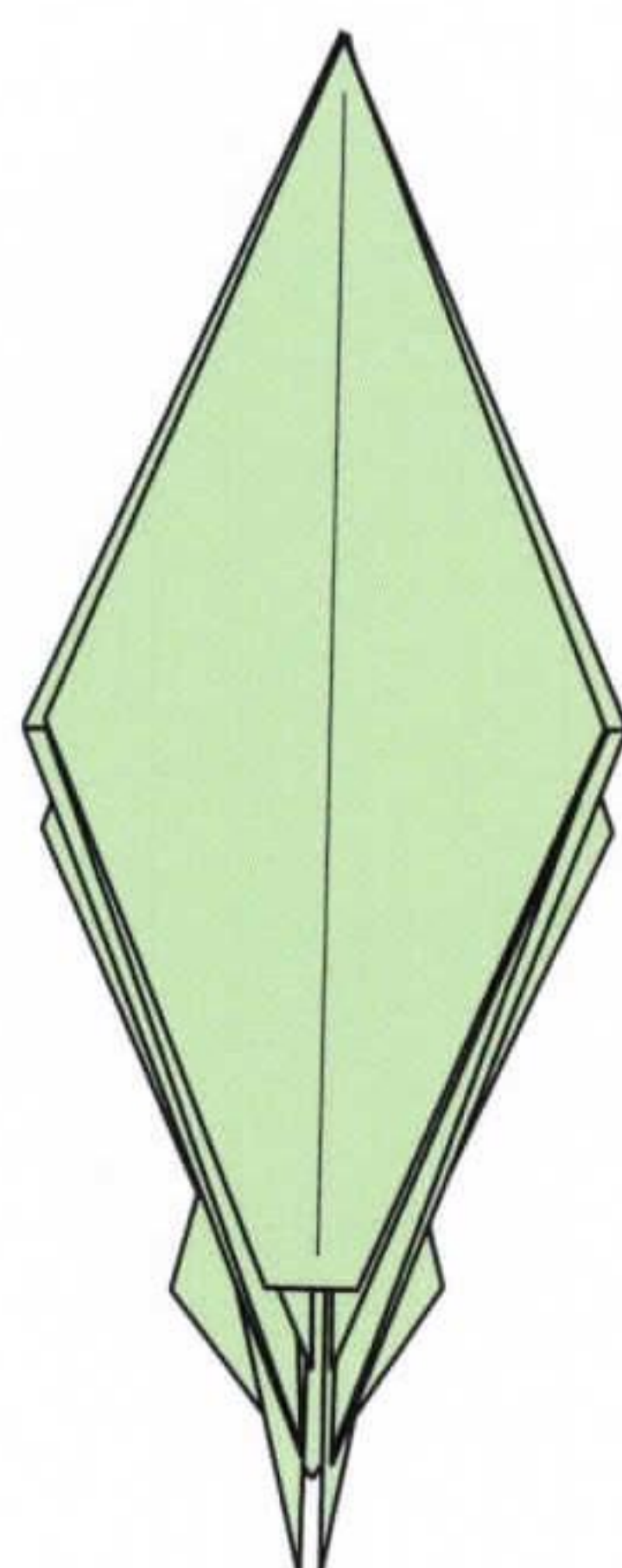
36. Fold the flap down.



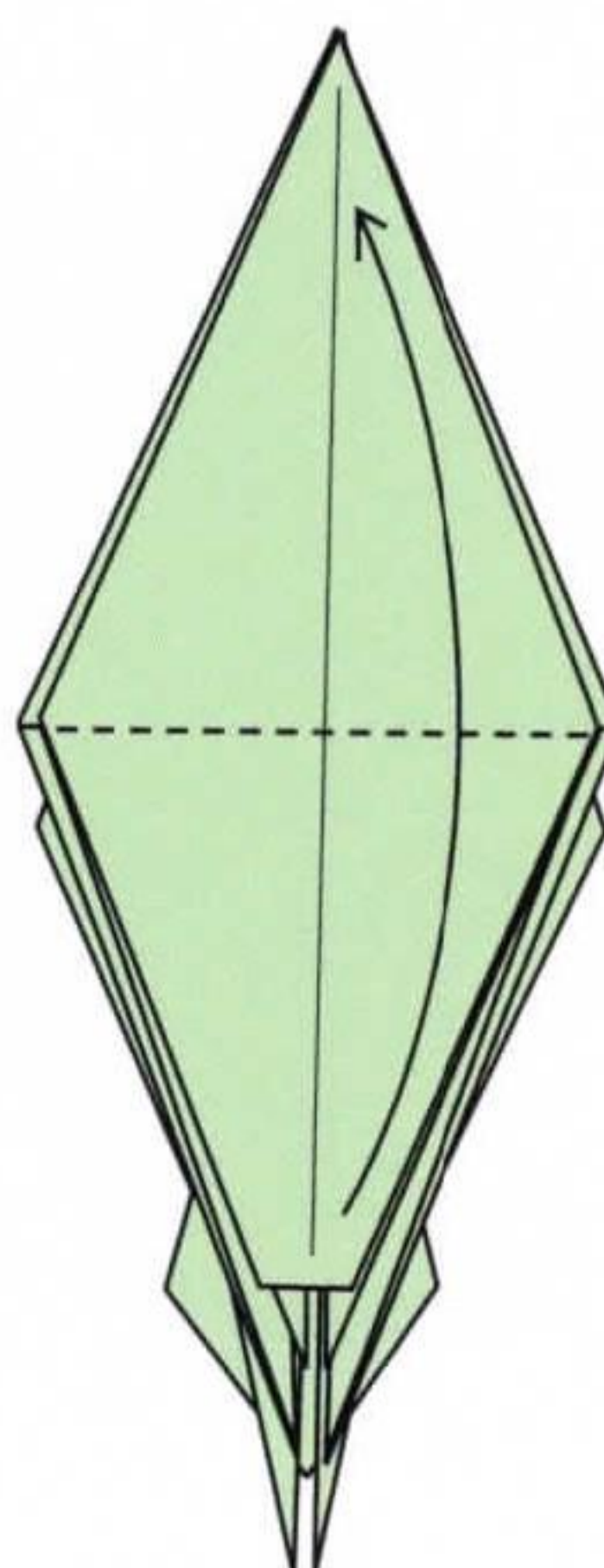
37. Bring the left side across.



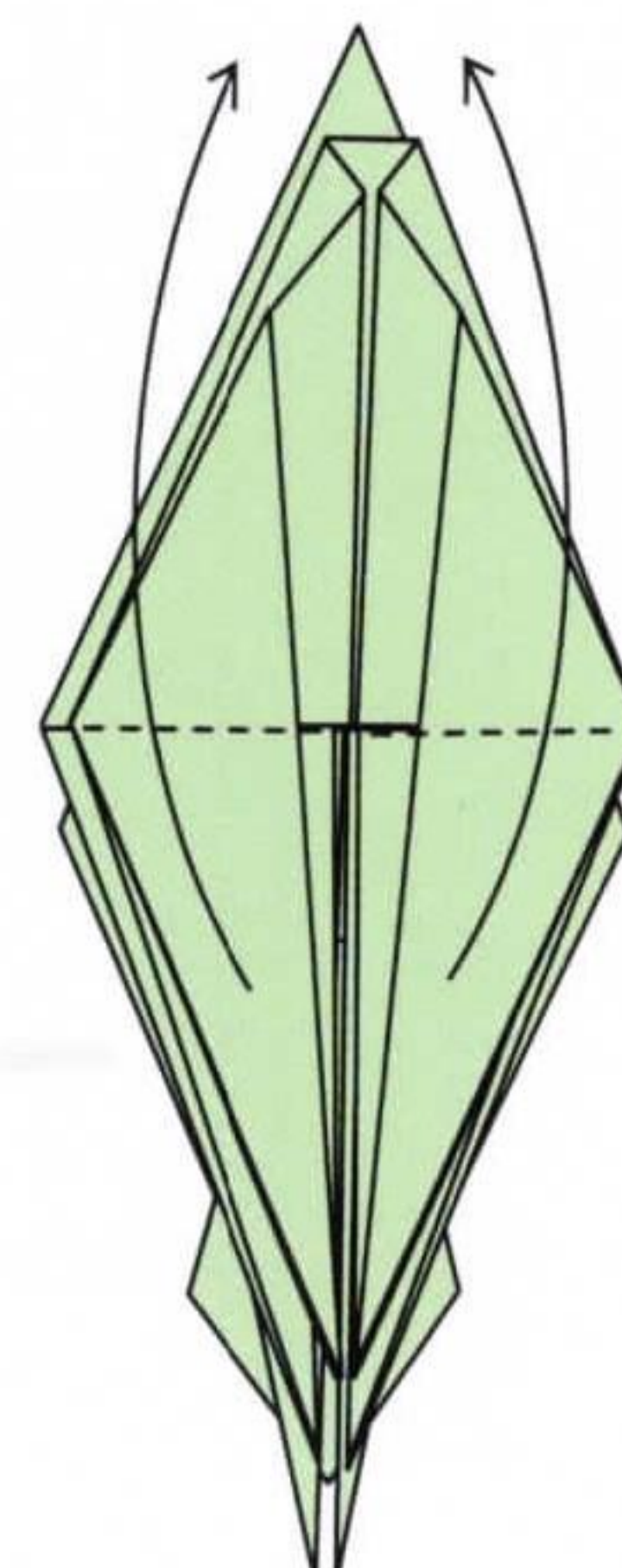
38. Repeat steps 33 through 37 on the other side.



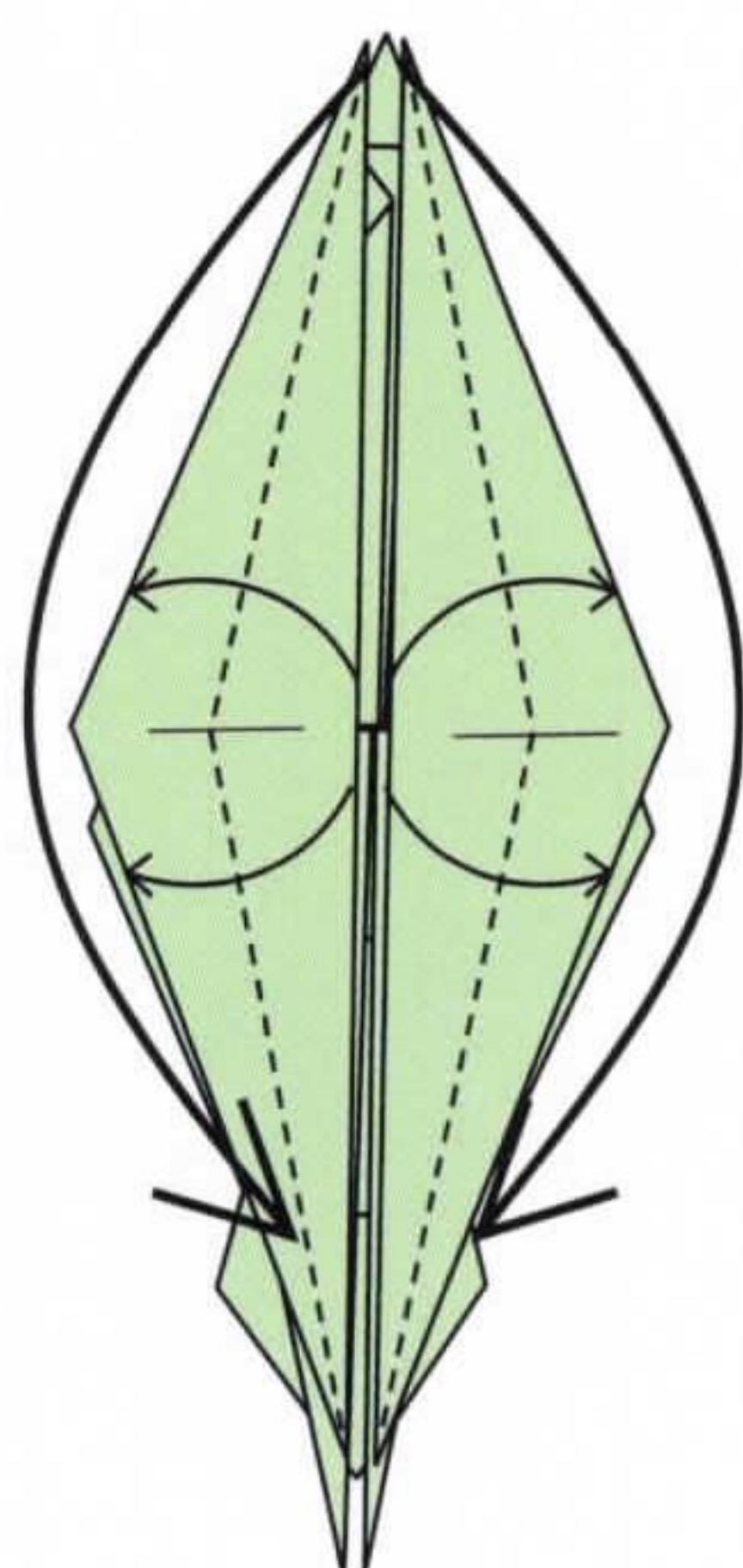
39. View of this stage.



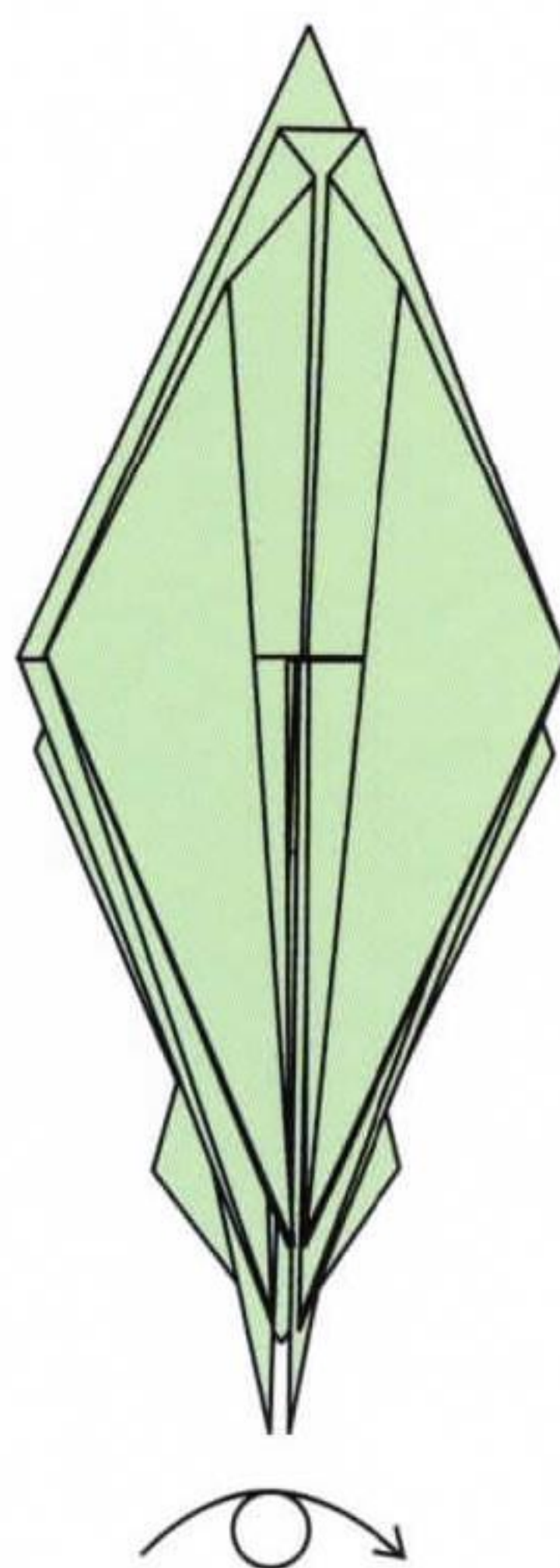
40. Fold the lower flap upward.



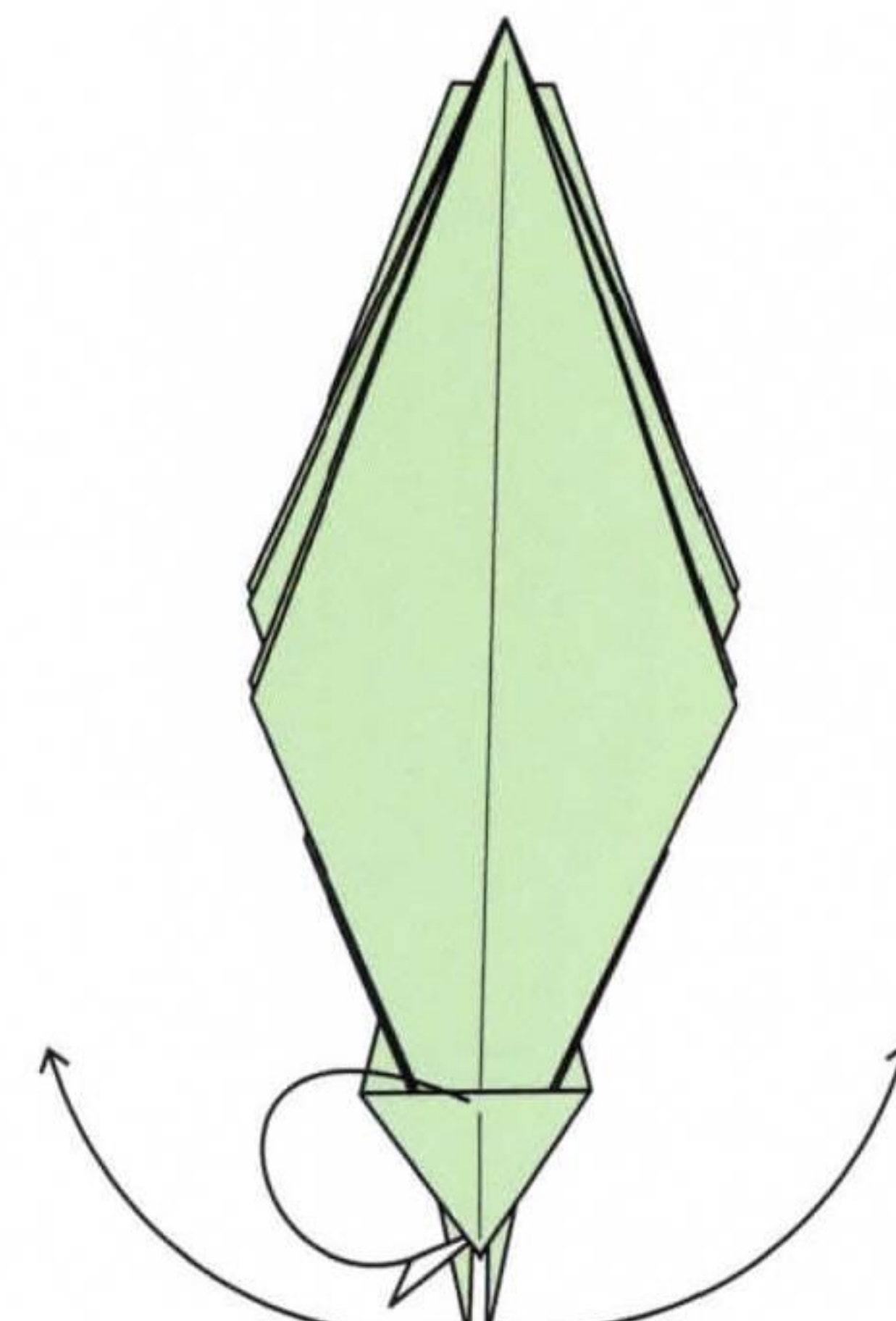
41. Fold the points up.



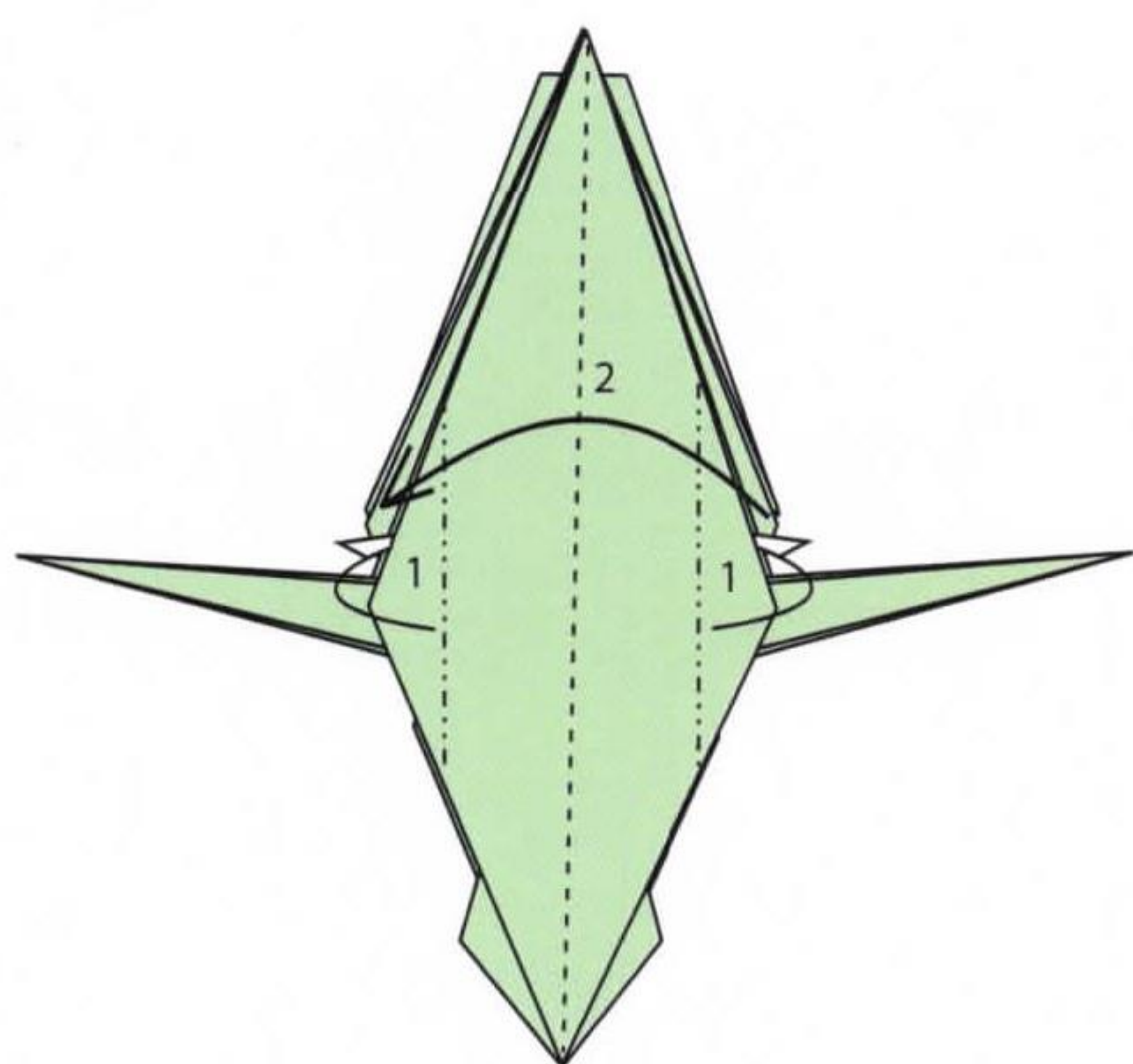
42. Bring the cut edges to the outer folded edges while moving the top points down.



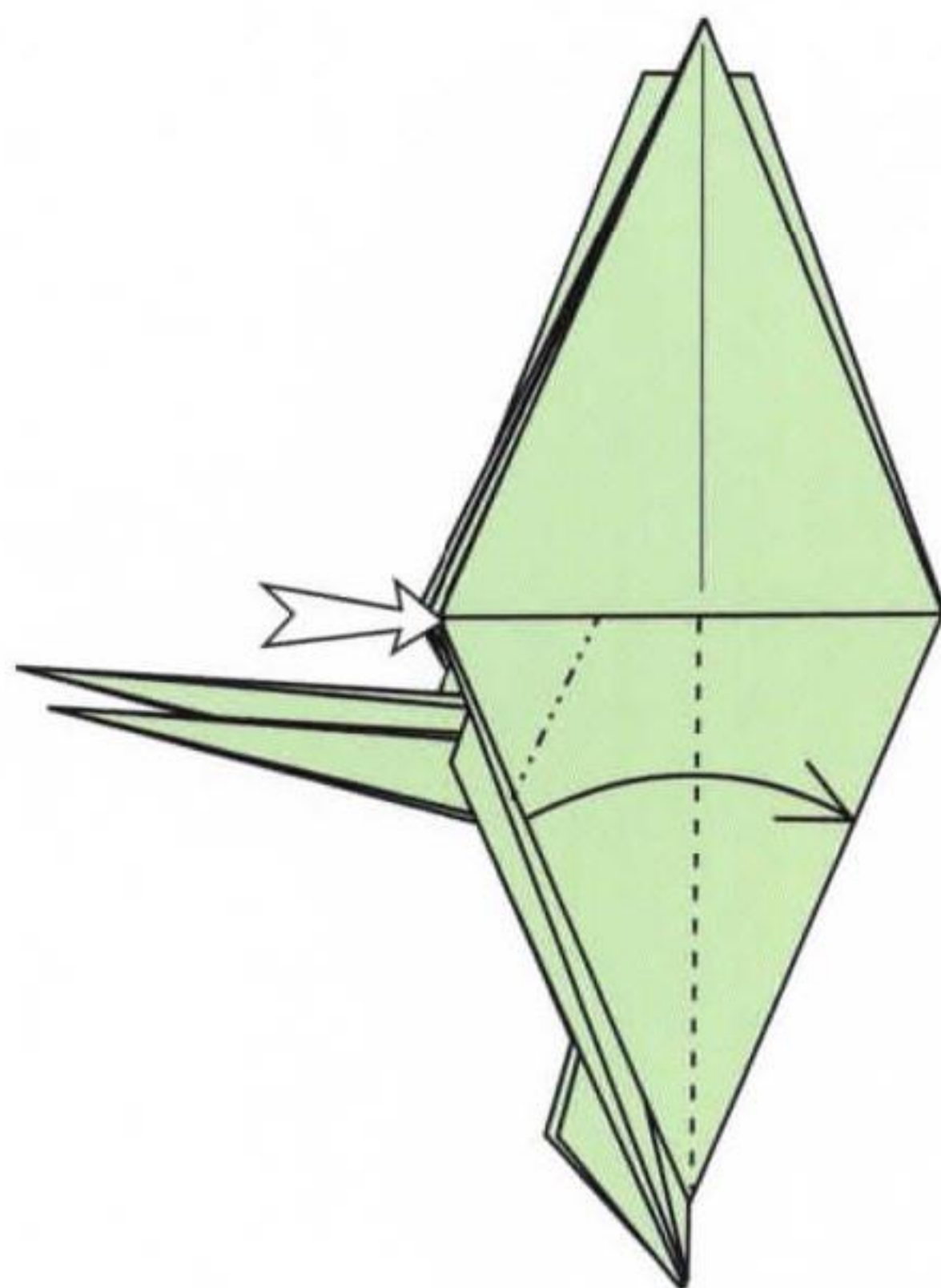
43. Turn the model over, left to right.



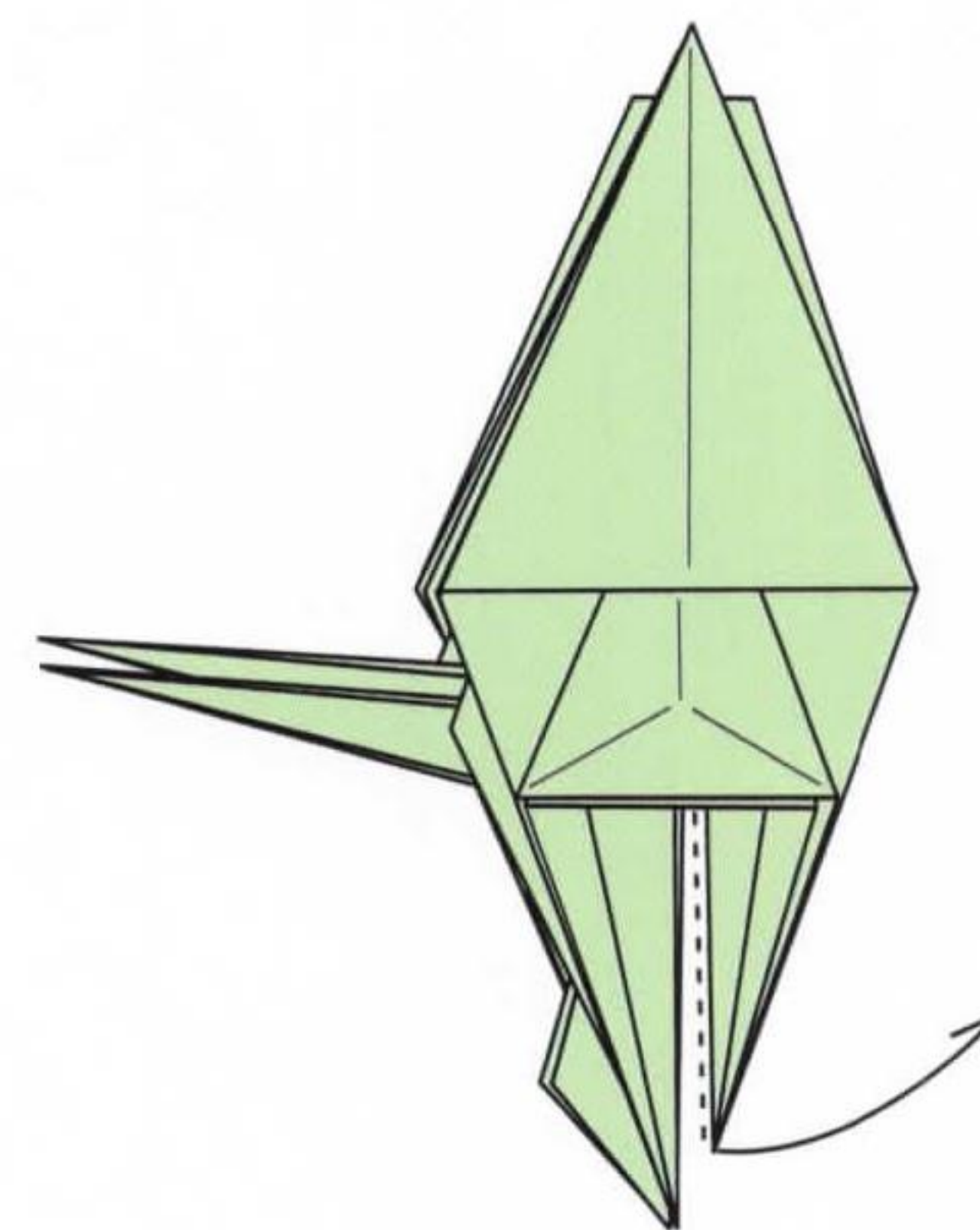
44. Turn the bottom shape inside out. Inside-reverse-fold the points to the side.



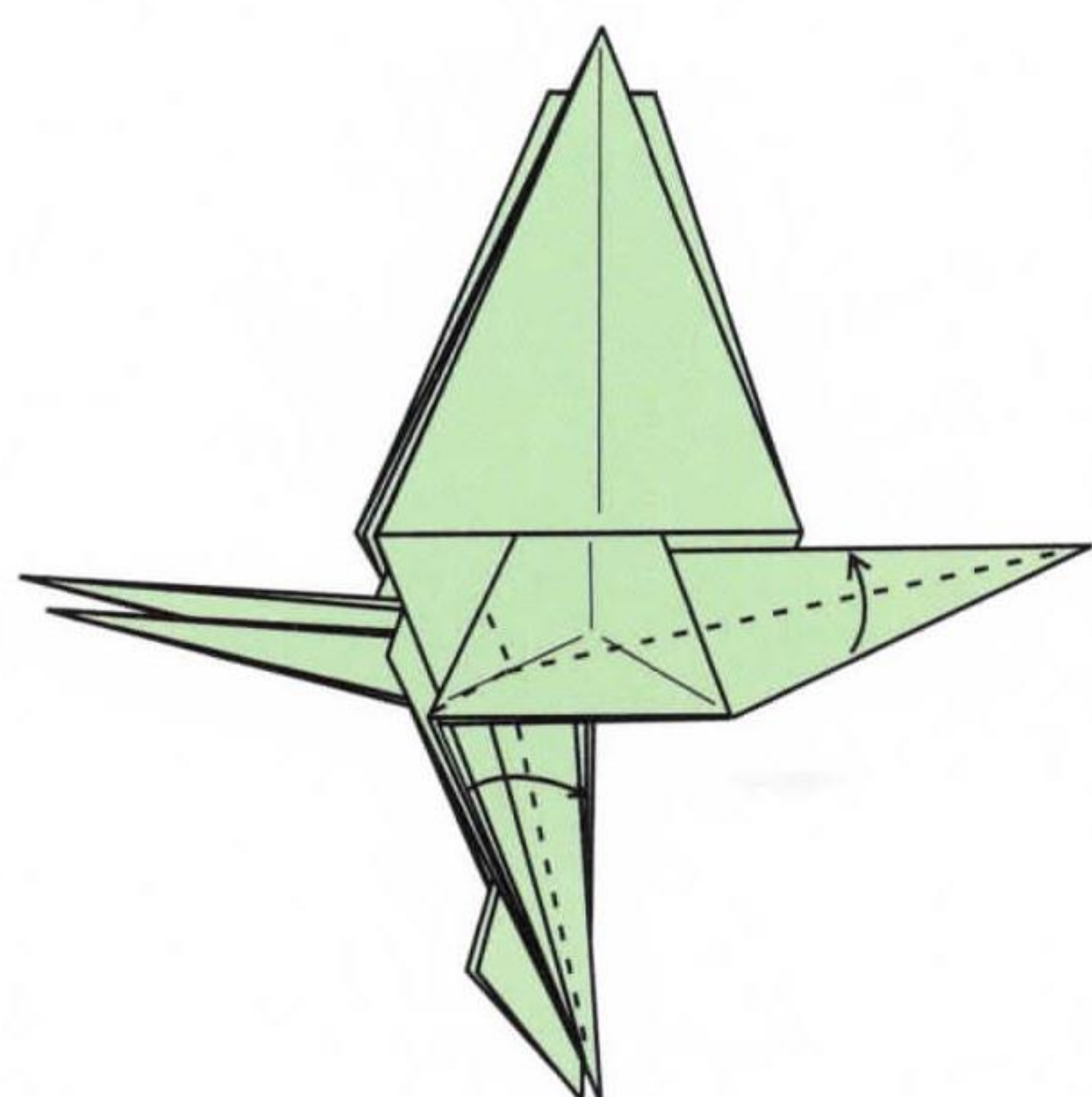
45. Mountain-fold the left and right corners inside (at number 1). Valley-fold the right leg layers to the left, exposing the indicated view (at number 2).



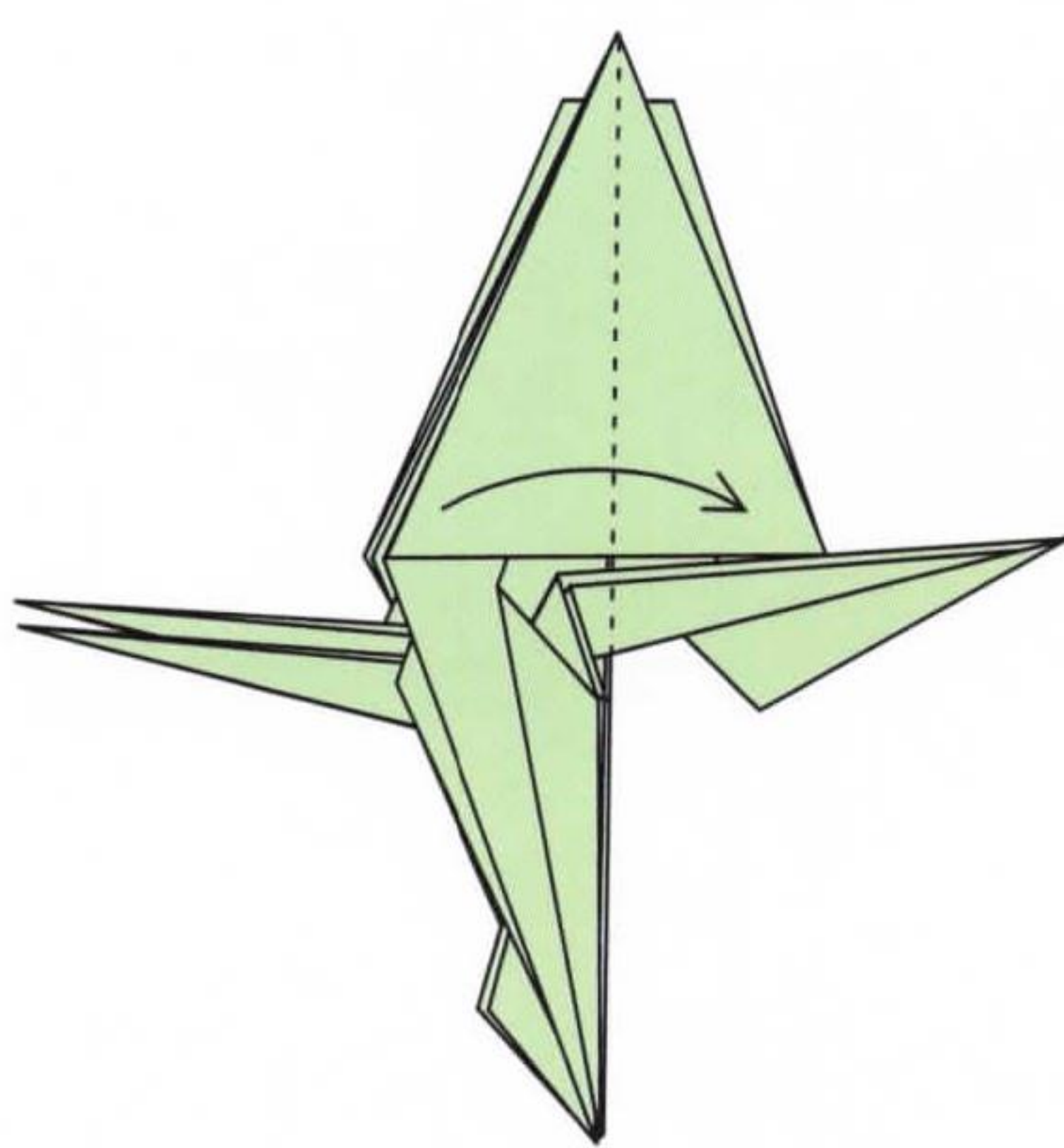
46. Squash-fold the point on the right to lay flat in front.



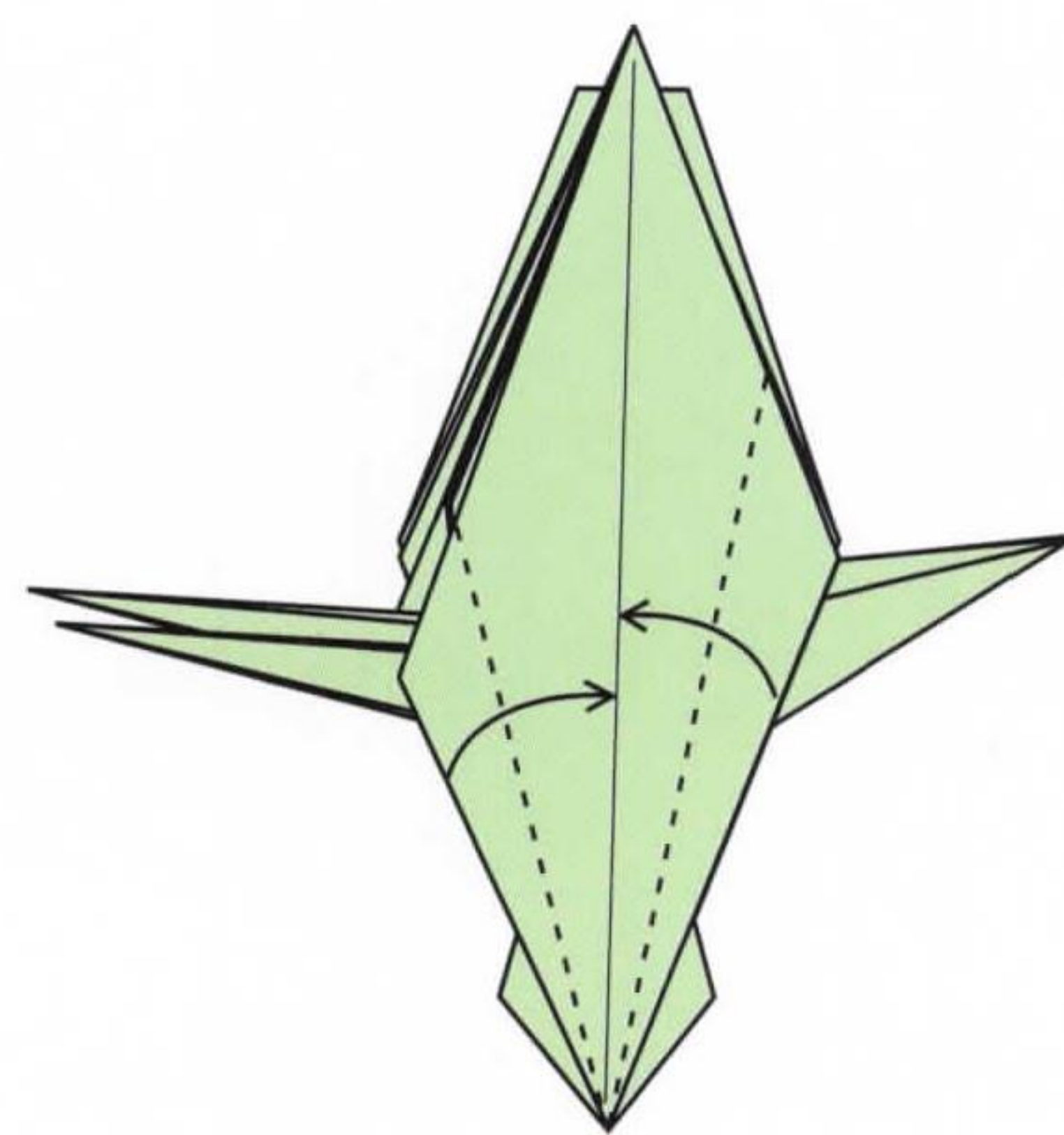
47. Inside-reverse-fold the right point straight out.



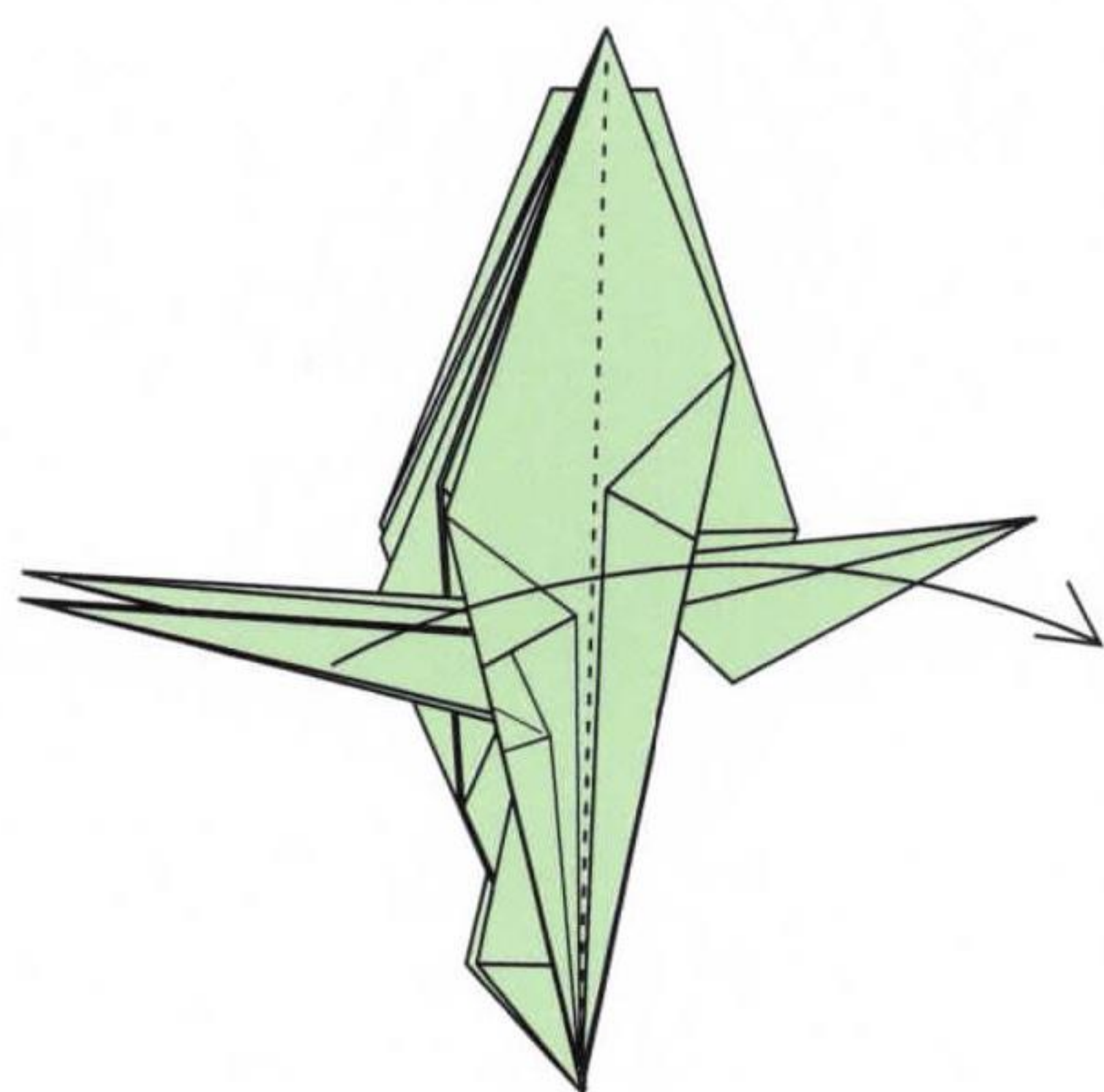
48. Make the right point narrower with a valley fold while bringing in the left edge to the centerline.



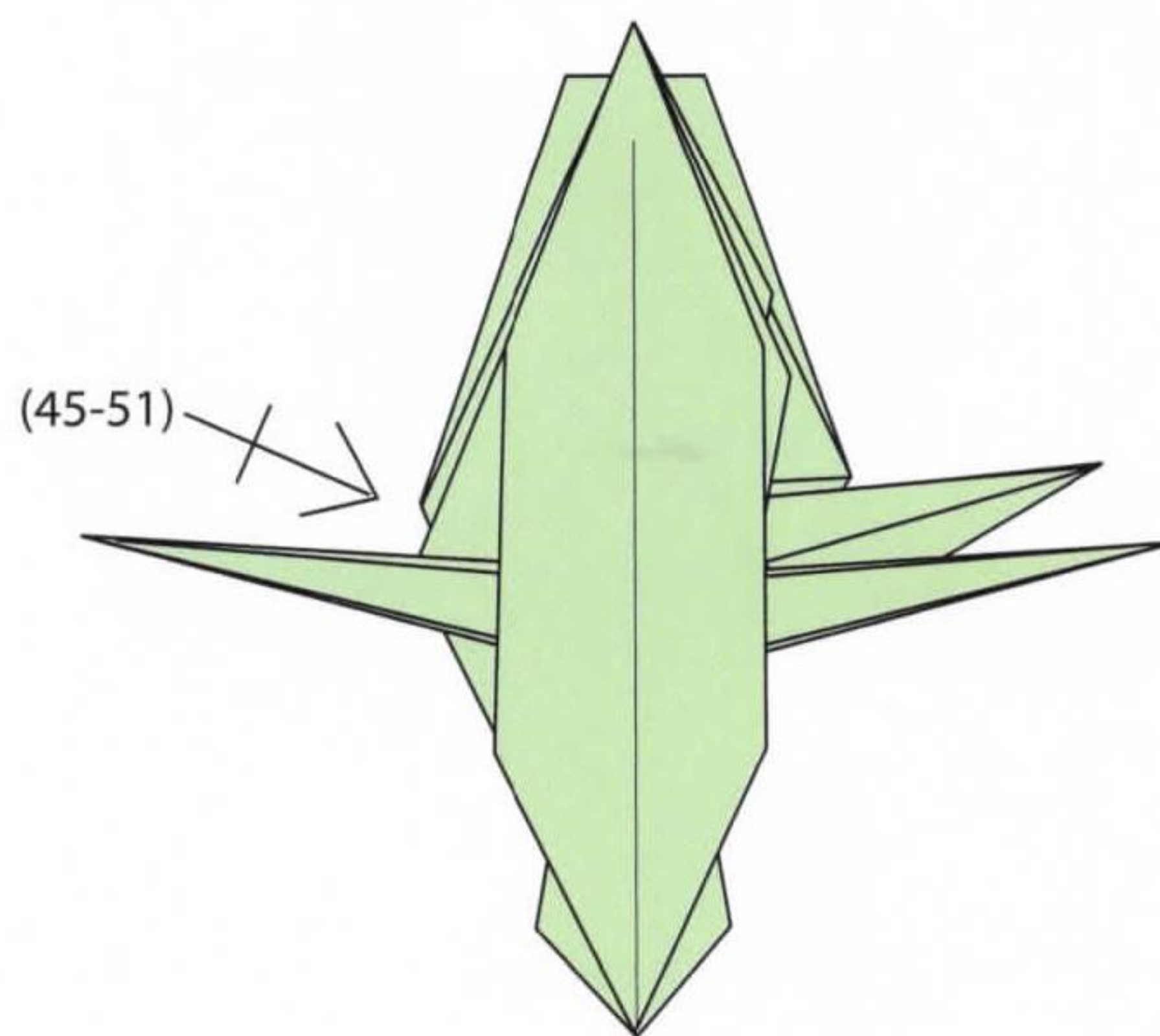
49. Bring the left flap across at the centerline.



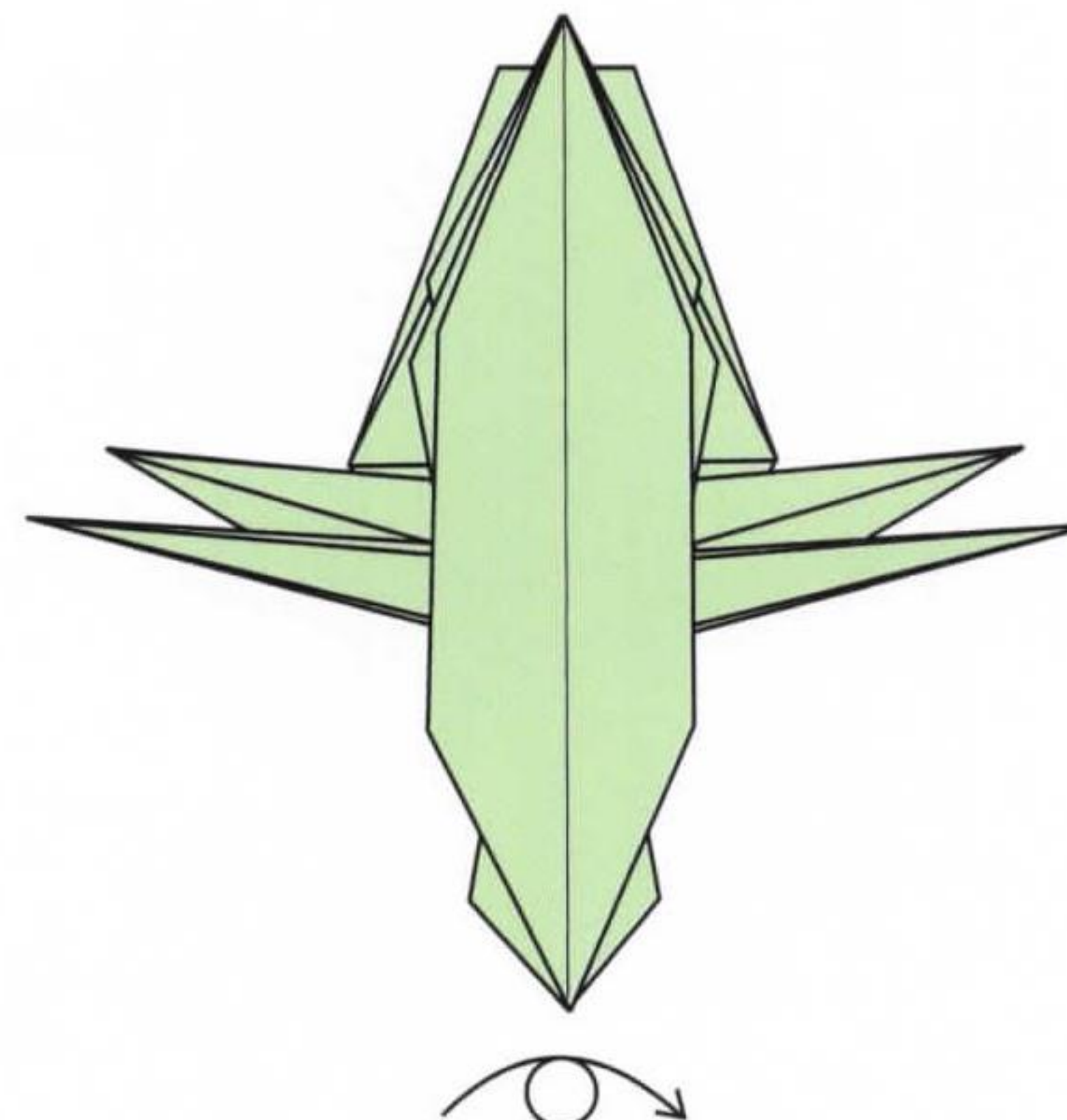
50. Fold the left and right edges to the center.



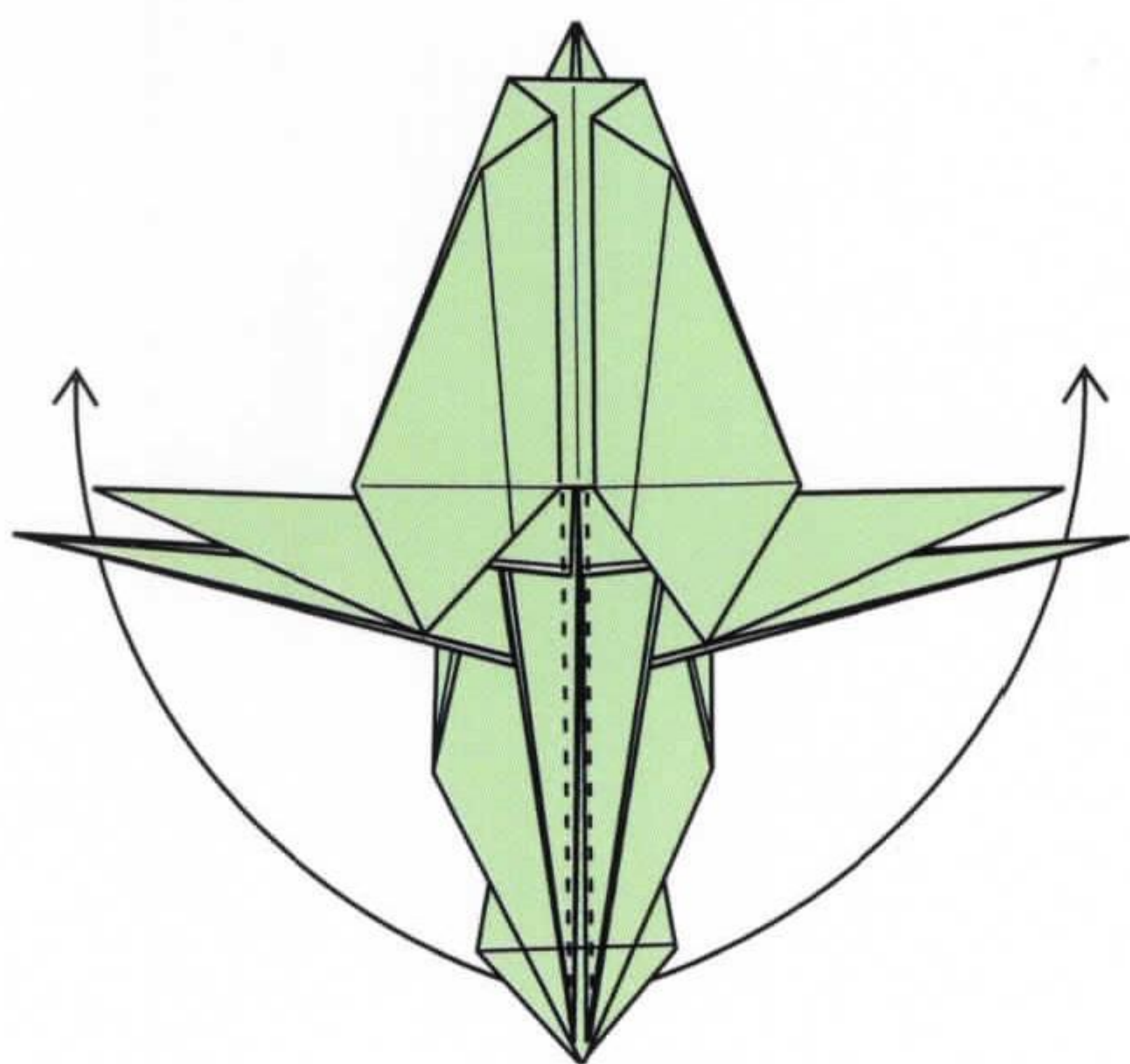
51. Move the top leg point and layers from the left back across to the right.



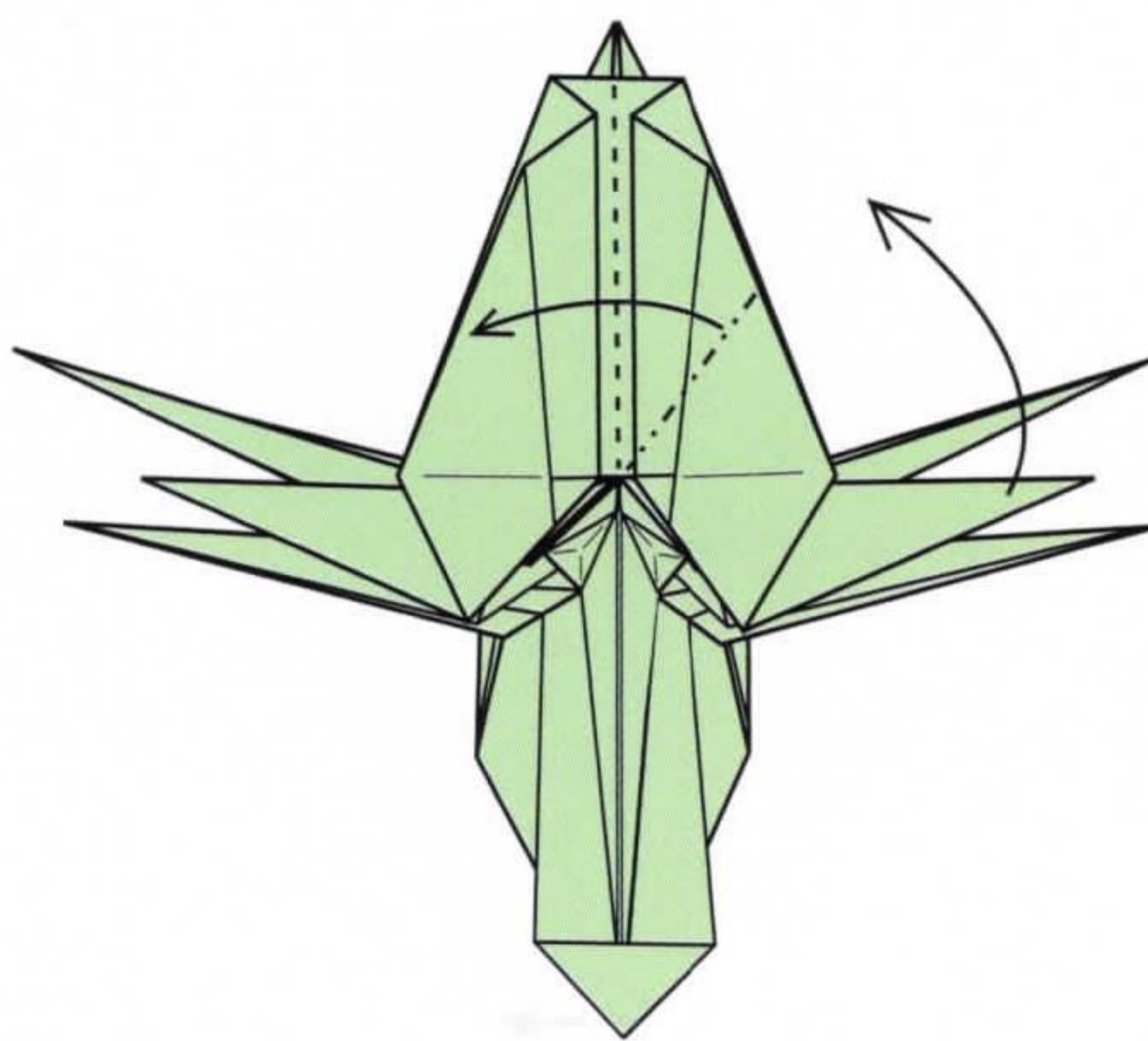
52. Repeat steps 45 through 51 on this side.



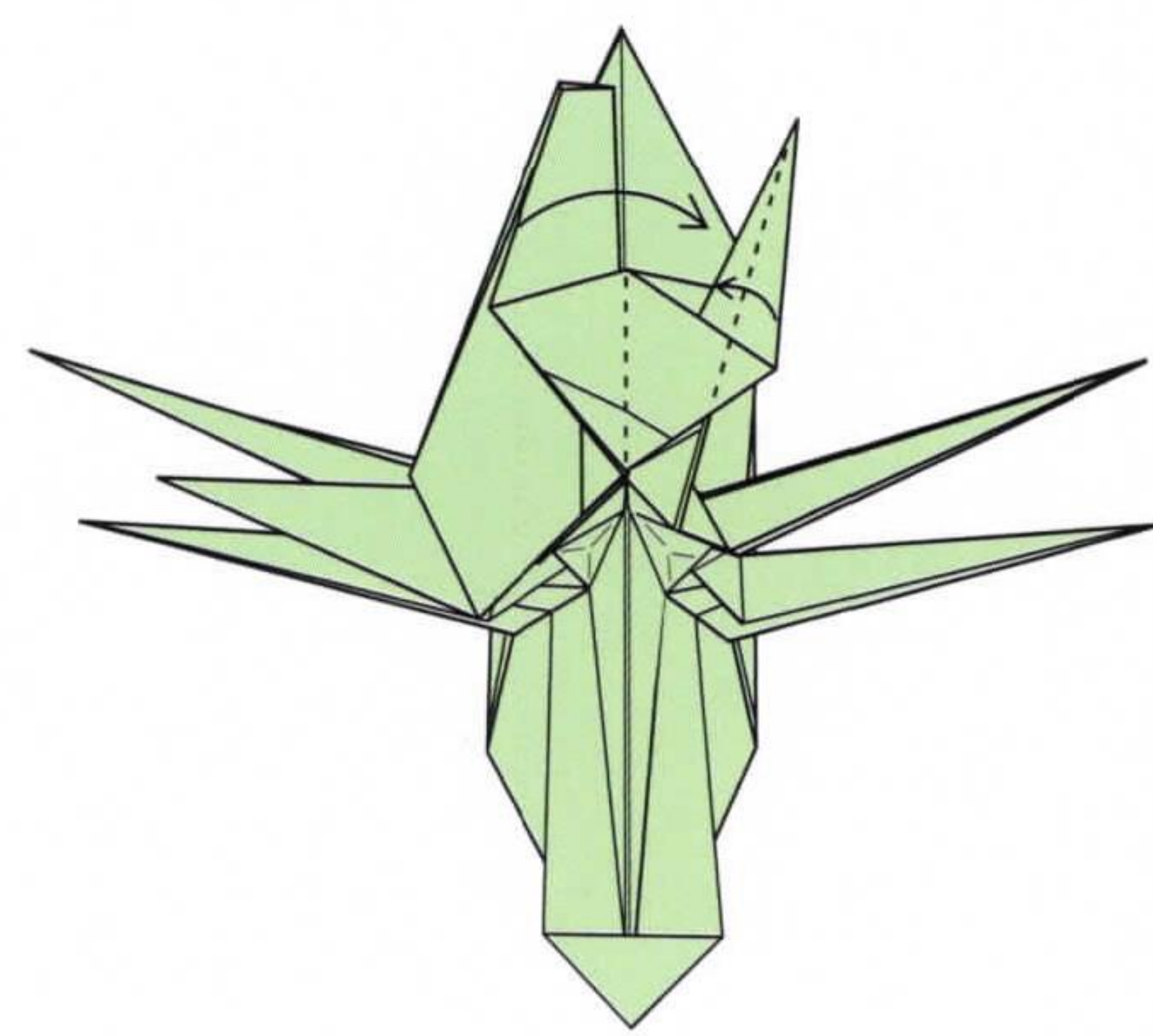
53. Turn the model over, left to right.



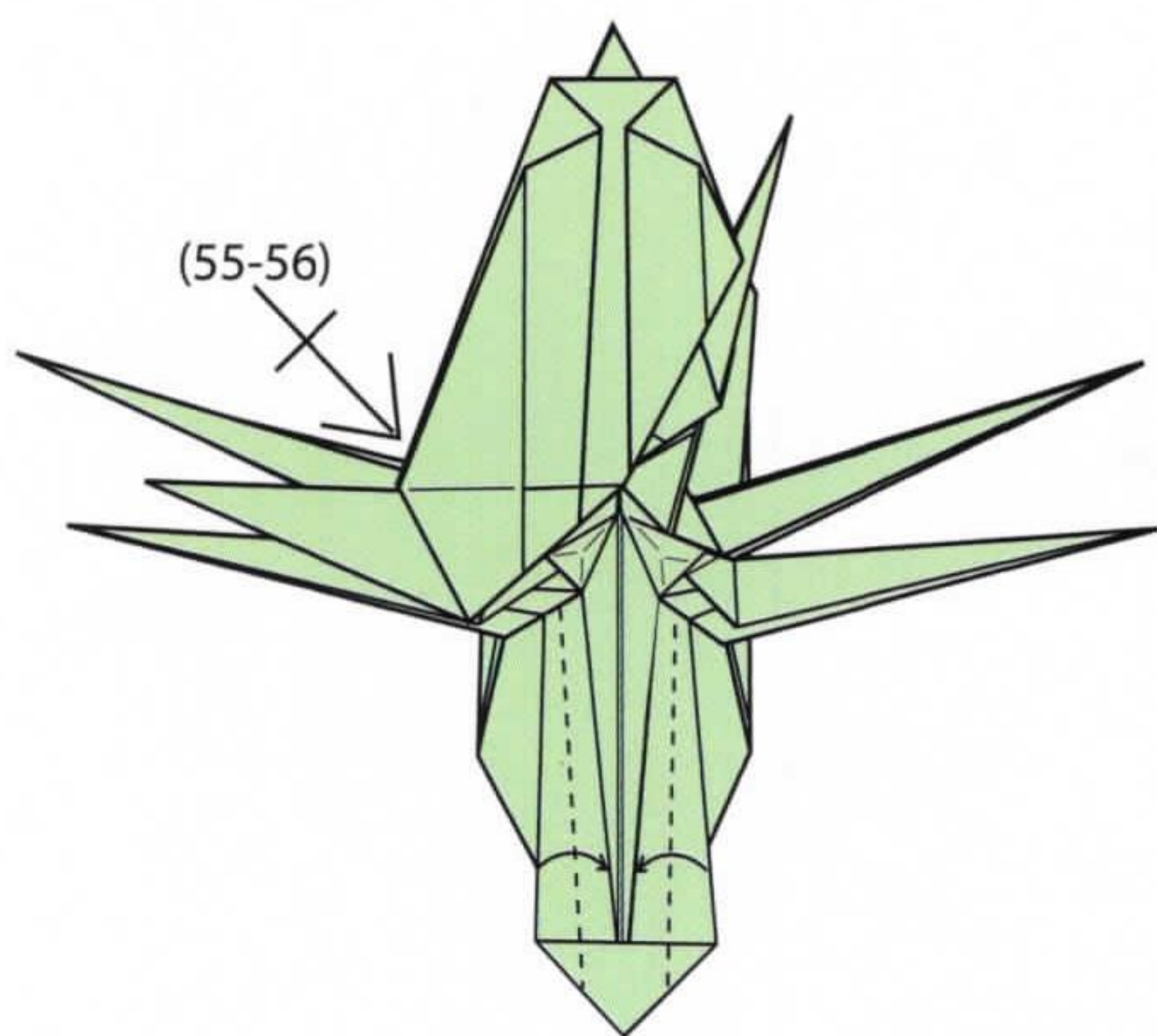
54. Inside-reverse-fold the legs out.



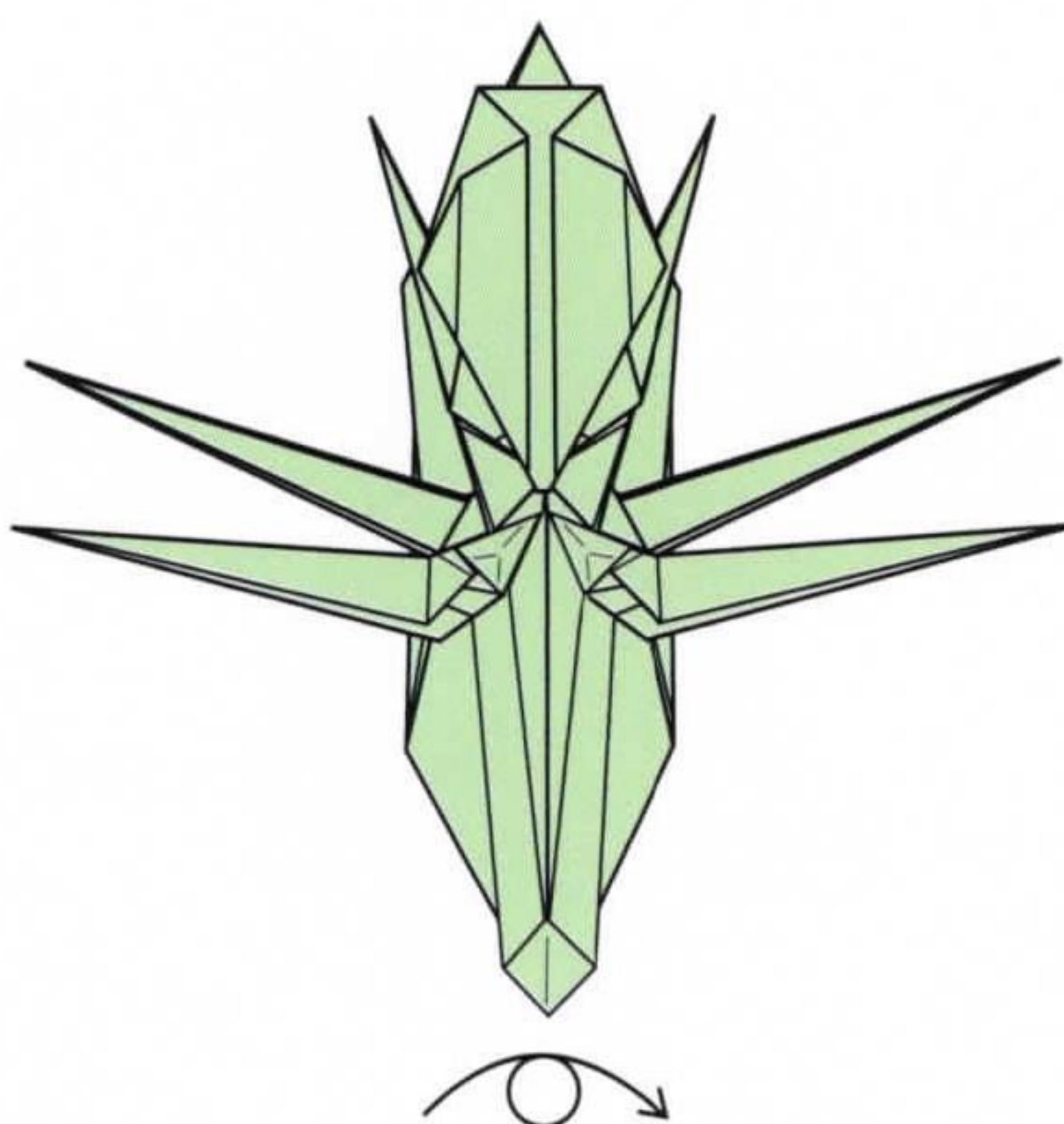
55. Swing the right front layer over to the left. Pull the mountain pinch and bring the indicated leg upward.



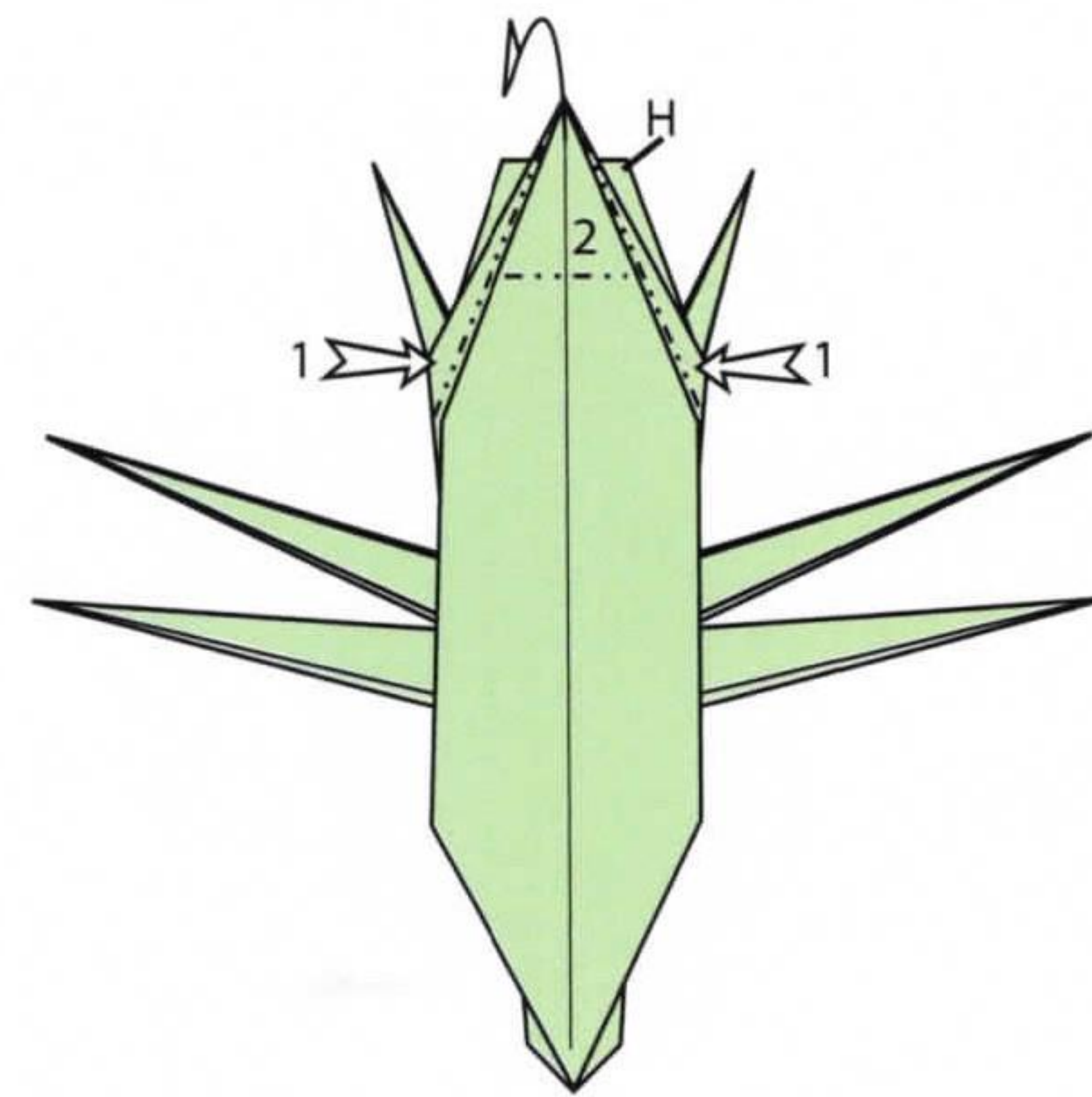
56. Fold the leg in half and bring the flap back over it.



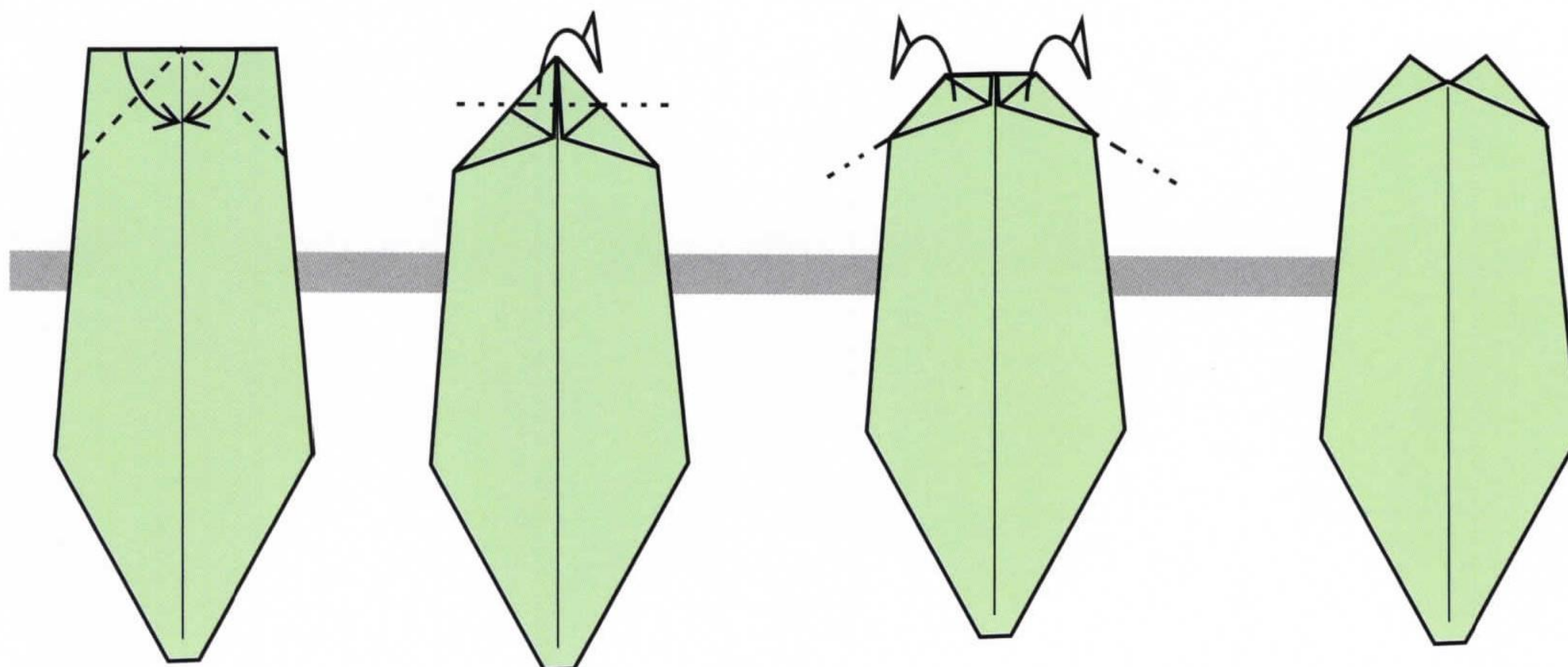
57. Repeat steps 55 through 56 on the other front leg. Fold the abdominal edges in.



58. Turn the model over, left to right.



59. Mountain-fold the edges in on each side of the head (at number 1). Mountain-fold the top point behind (at number 2).

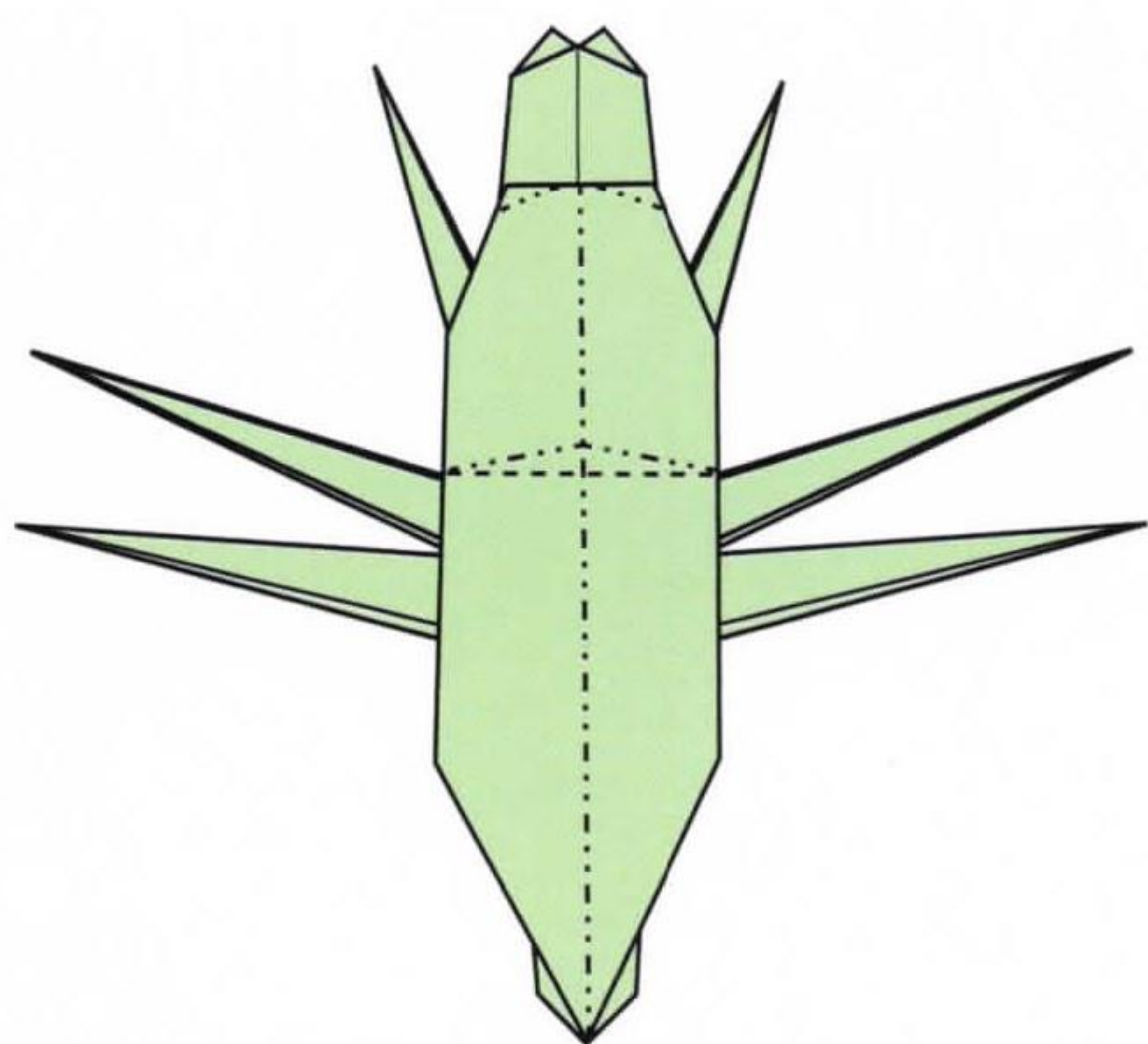


60. Detail of head folds: fold the top corners to the centerline.

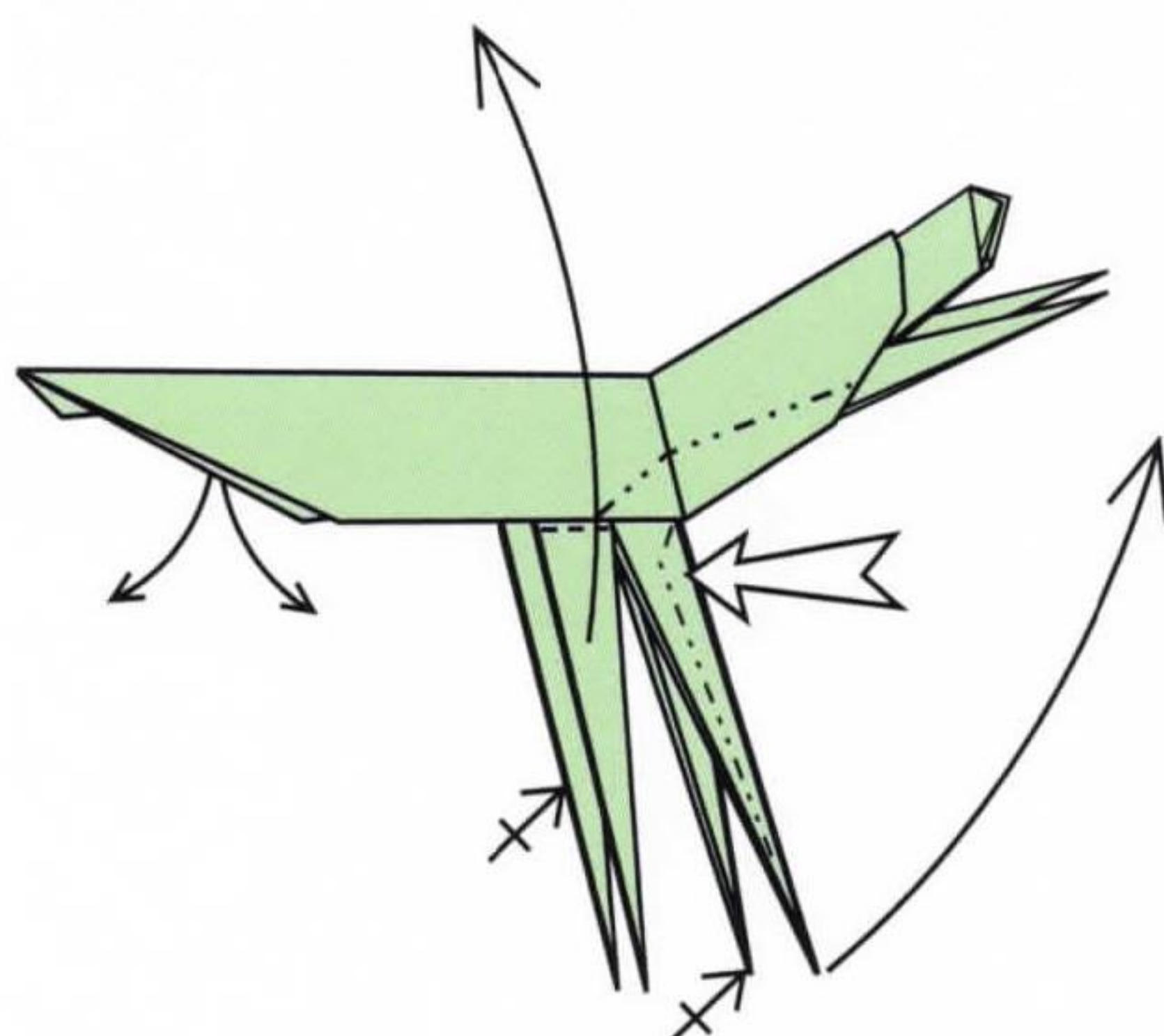
61. Mountain-fold the top point behind.

62. Mountain-fold the top corners over.

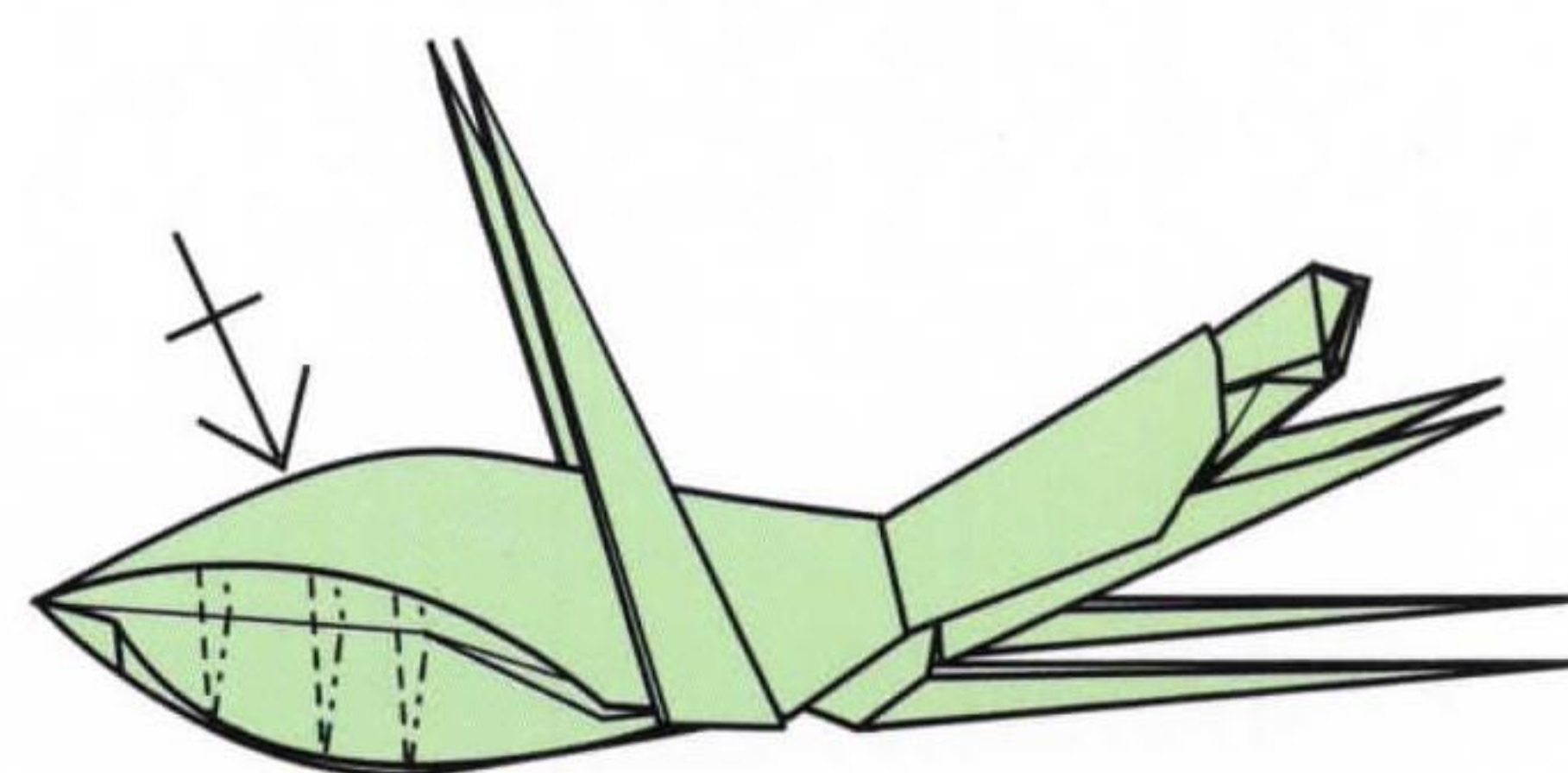
63. Note the two points at the top. These will become the mouth parts.



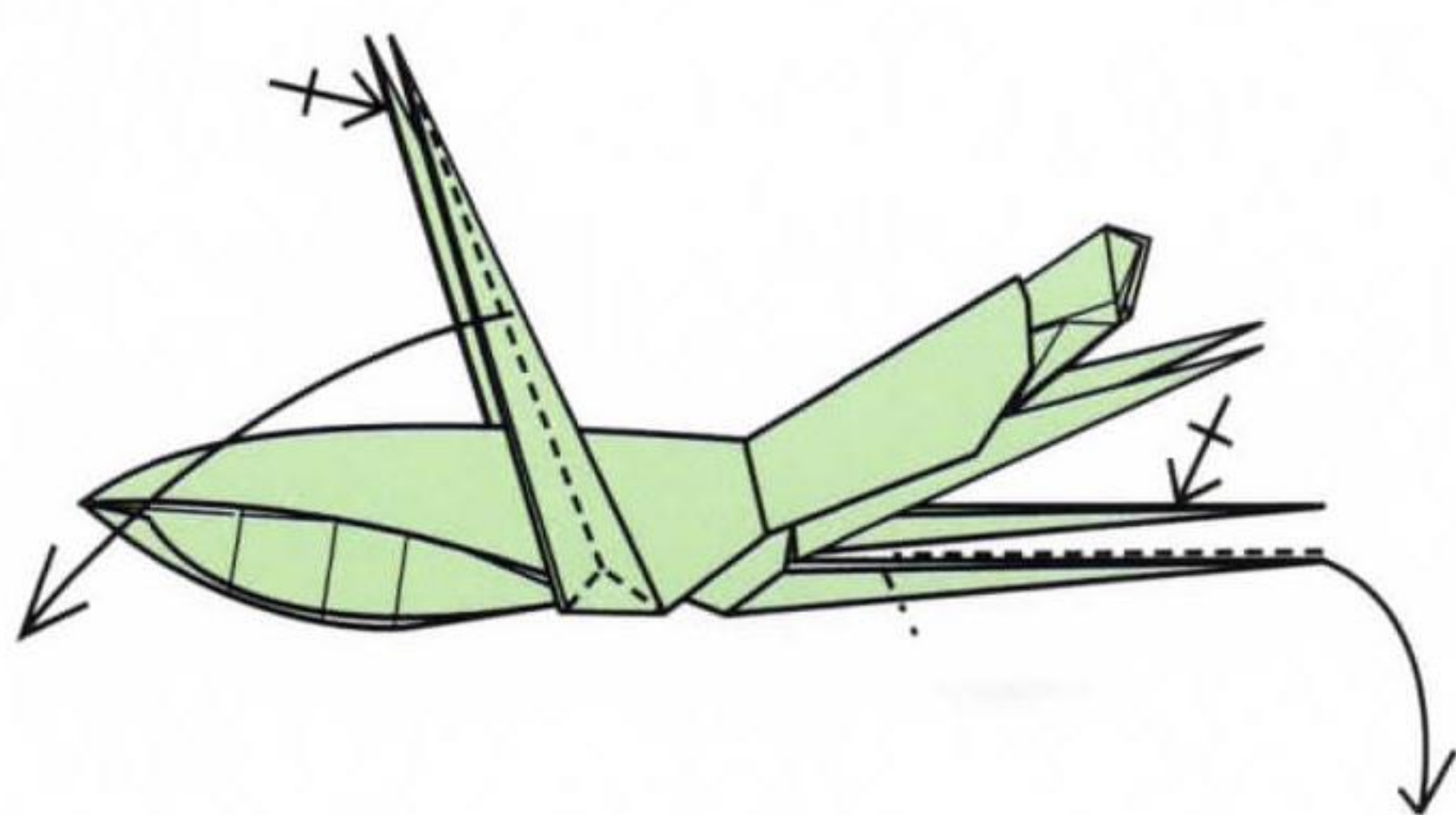
64. Mountain-fold in half along the top of the back only to the neck area. Crimp at the junction of the thorax and abdomen to raise the thorax. Round the top of the thorax with mountain folds at the corners.



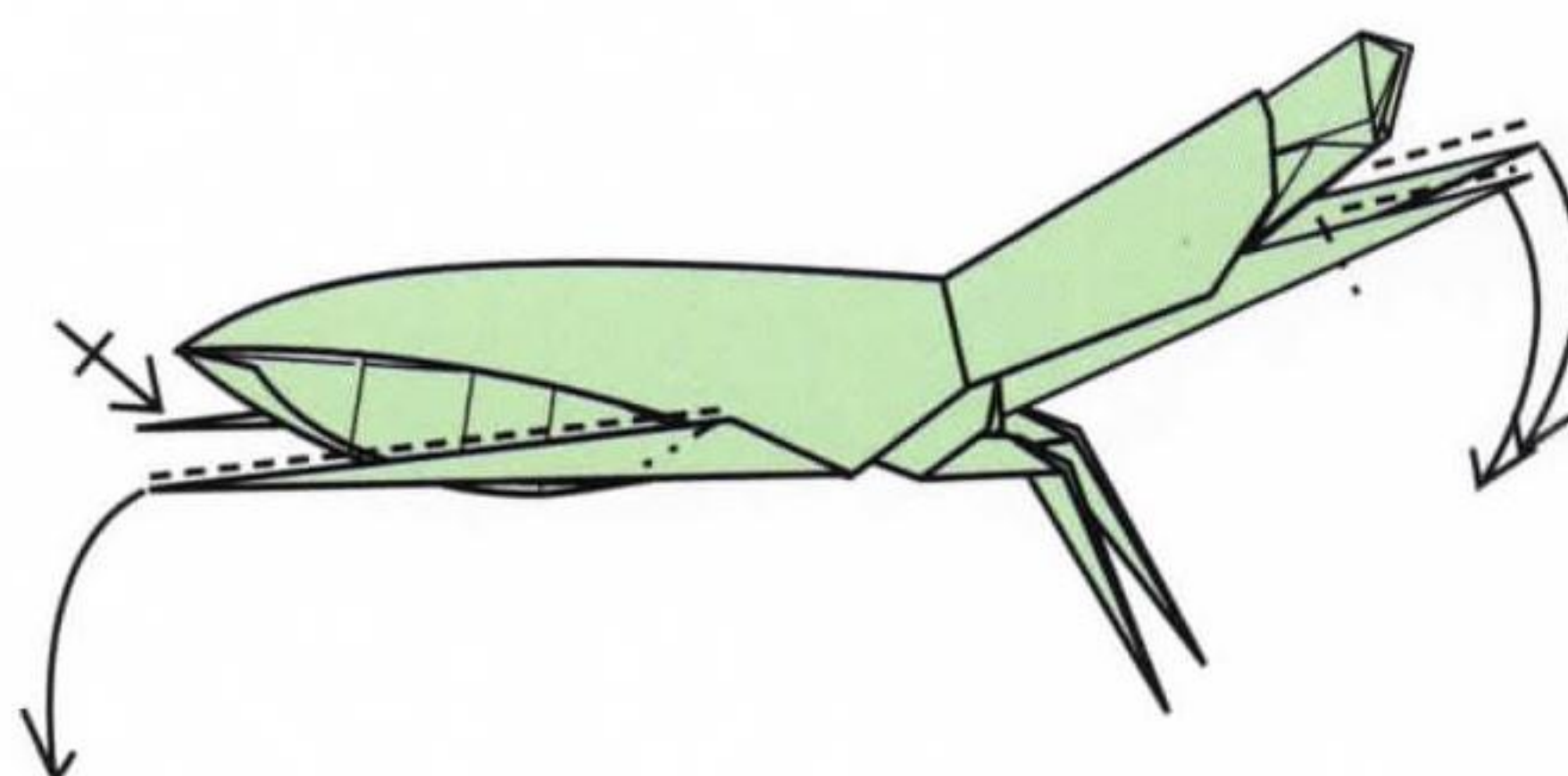
65. Pull out the layers of the lower abdomen. Fold the rear legs up. Narrow the thorax by mountain-folding the lower edges inward. Swing the middle legs forward by mountain-folding along the centerlines of the legs as seen from the sides.



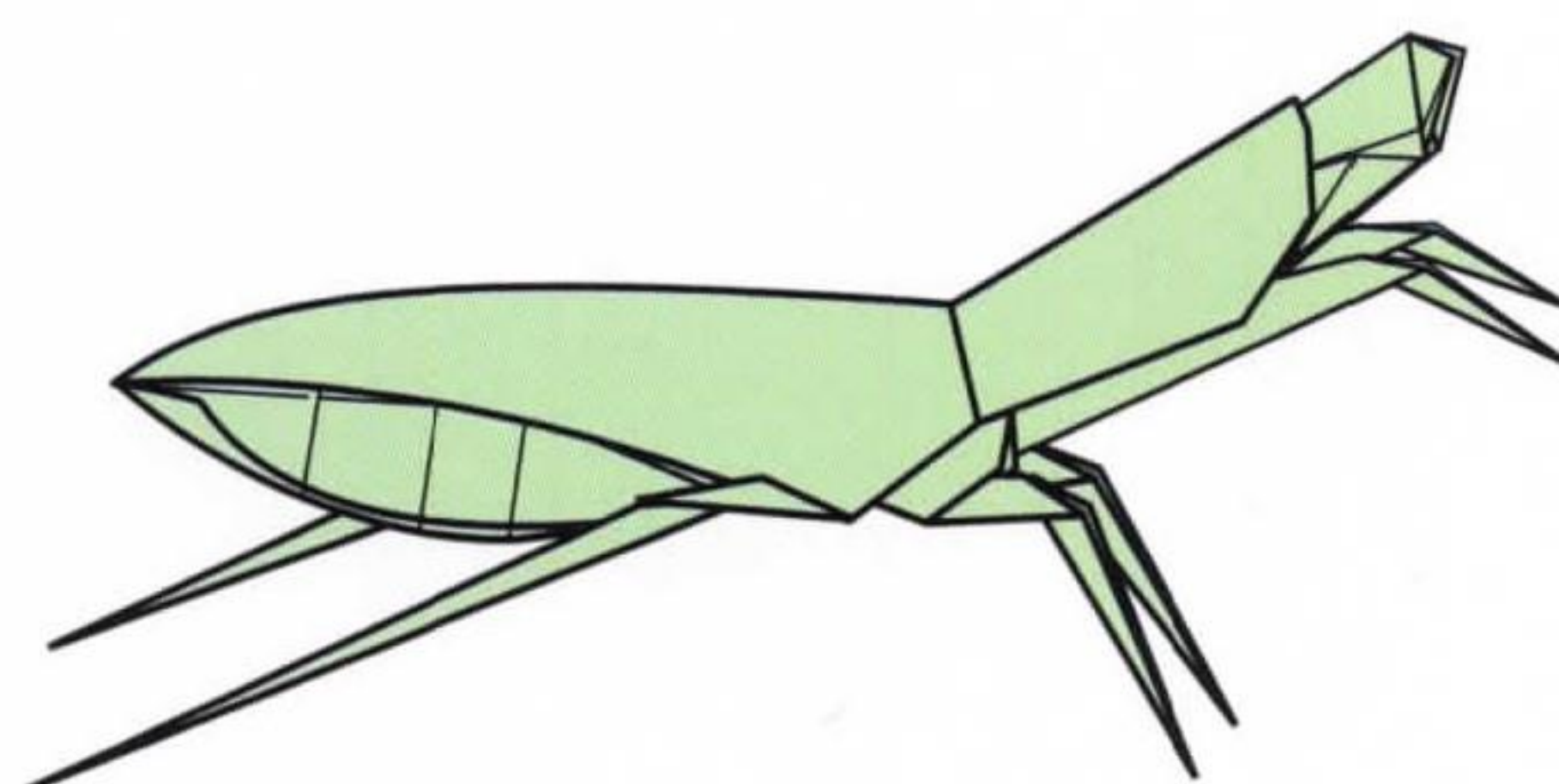
66. Create segments in the lower abdomen on both sides using a series of three pairs of mountain-valley pleats.



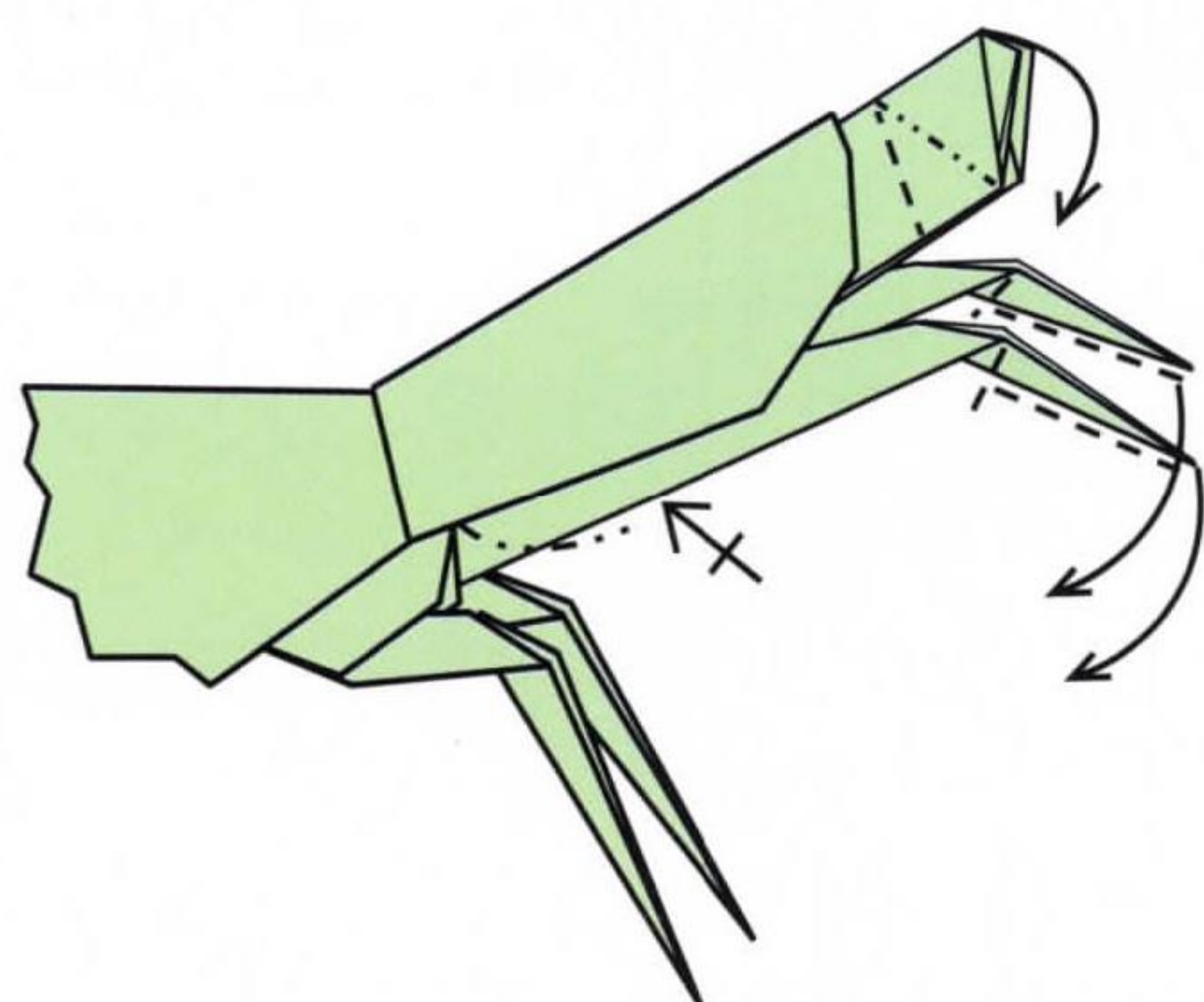
67. Rabbit-ear each hind leg to swing it toward the rear. Inside-reverse-fold the middle legs downward.



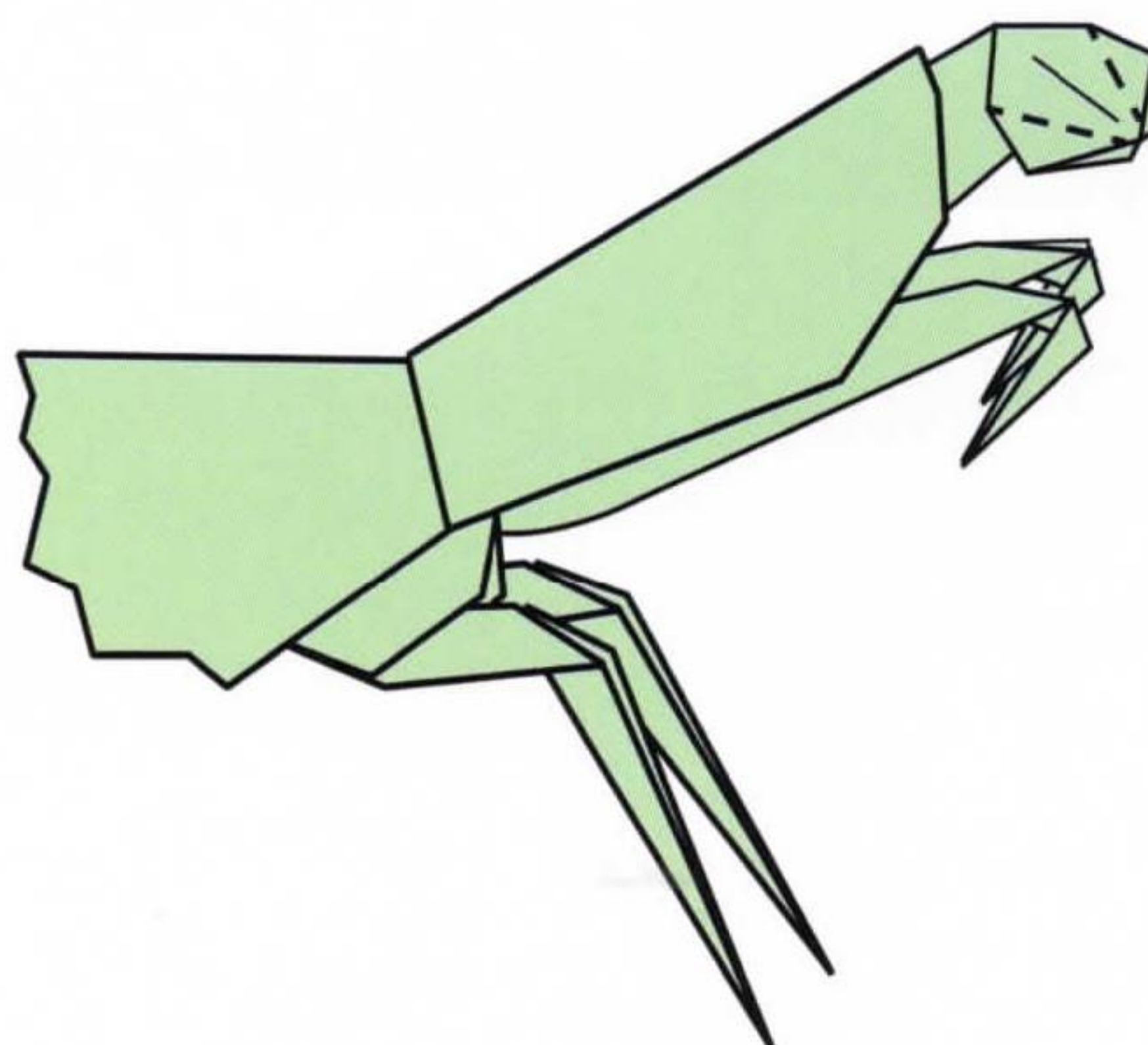
68. Inside-reverse-fold the rear and front legs down into position.



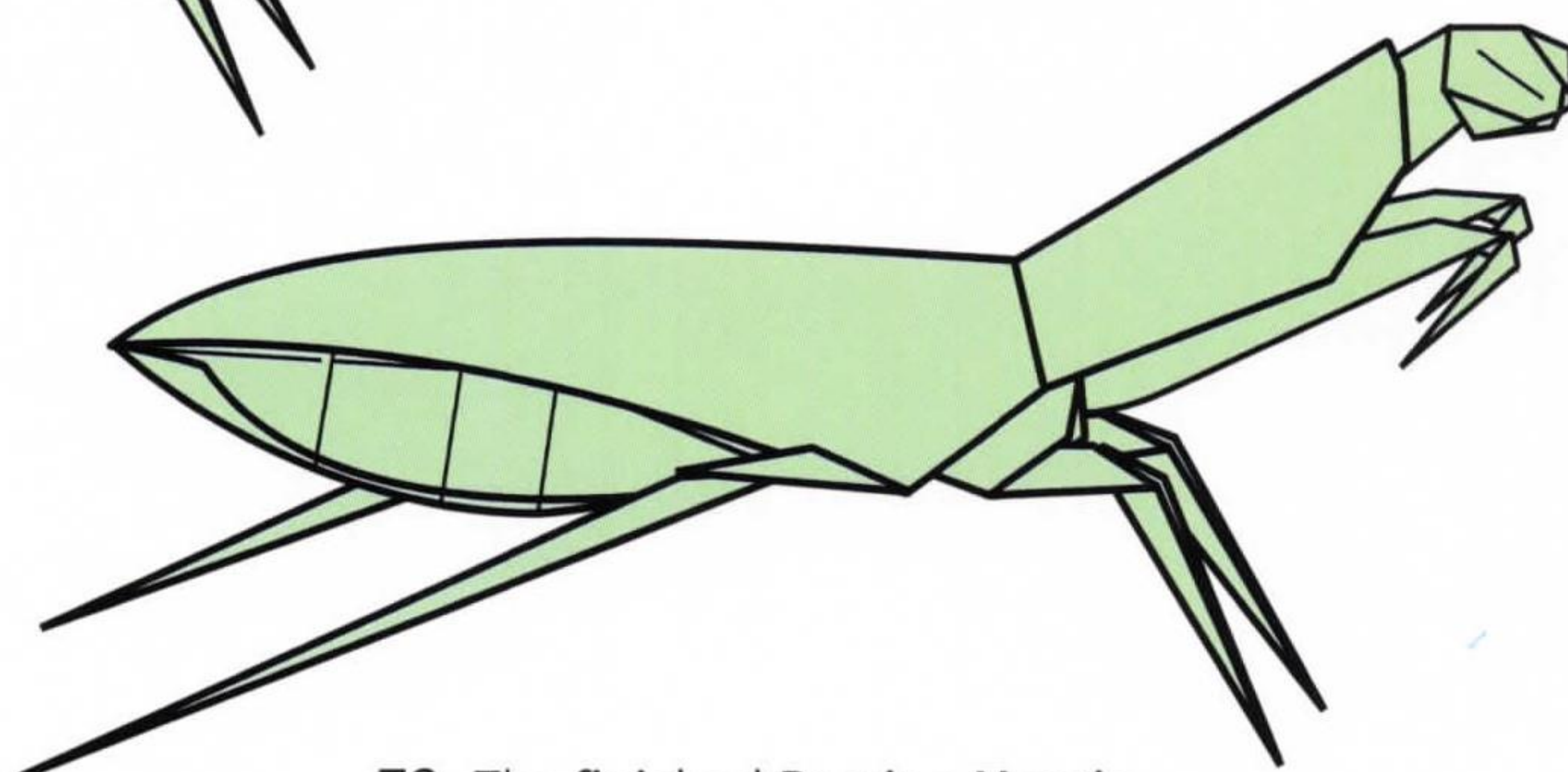
69. The result of step 68.



70. Outside-reverse-fold the ends of the front legs to point down. Squash-fold the head and check for symmetry. Make mountain creases at the base of the front legs to simulate the "elbows."



71. Valley-fold head corners up to form the eyes. The basic folding is complete. Check all areas of the model for detail, adding touches here and there as needed for poise and realism. Stay within the limits of the paper's ability to be shaped. Don't overwork it.



72. The finished Praying Mantis.

panther mask

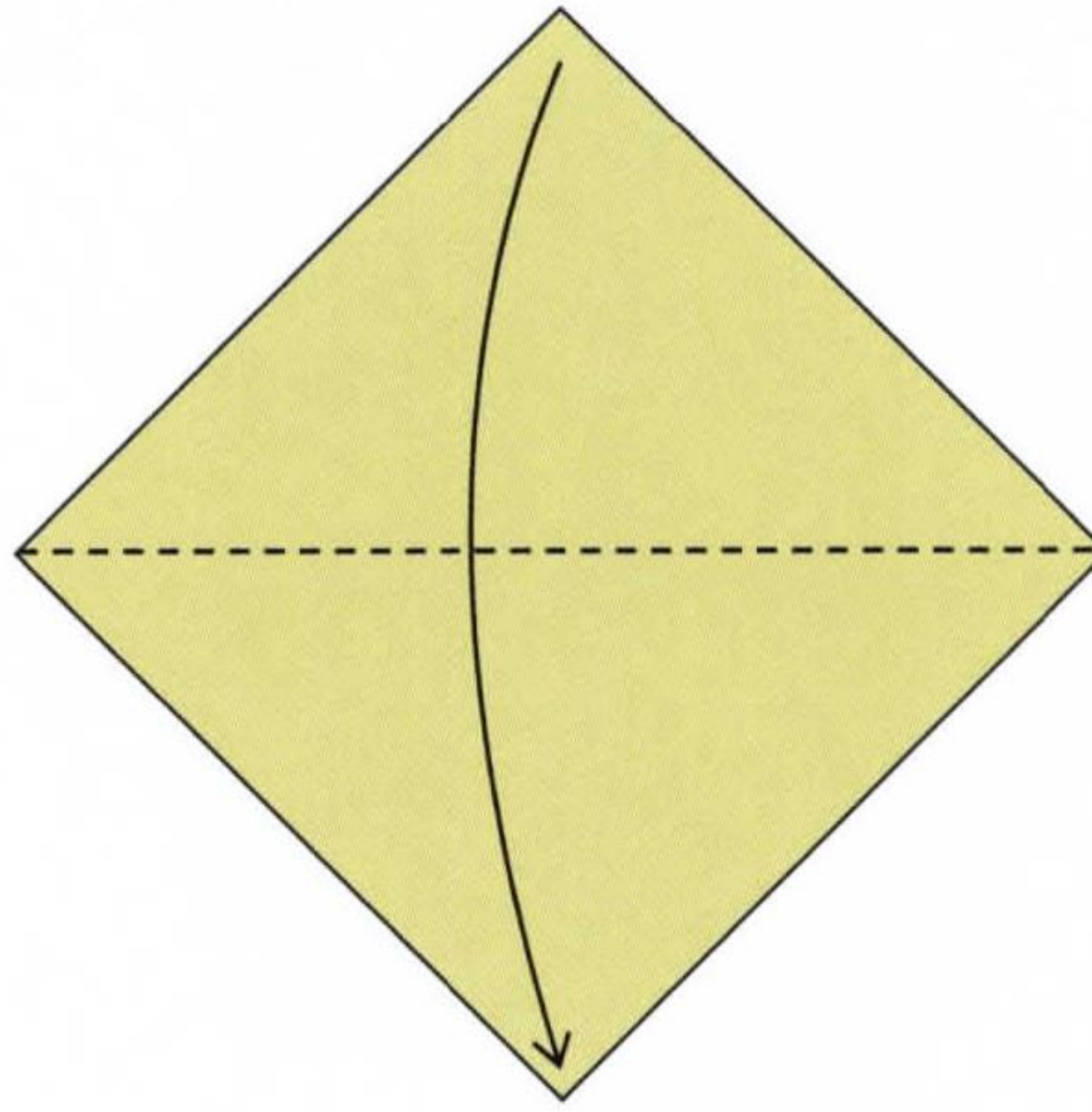
Designed by Michael G. LaFosse



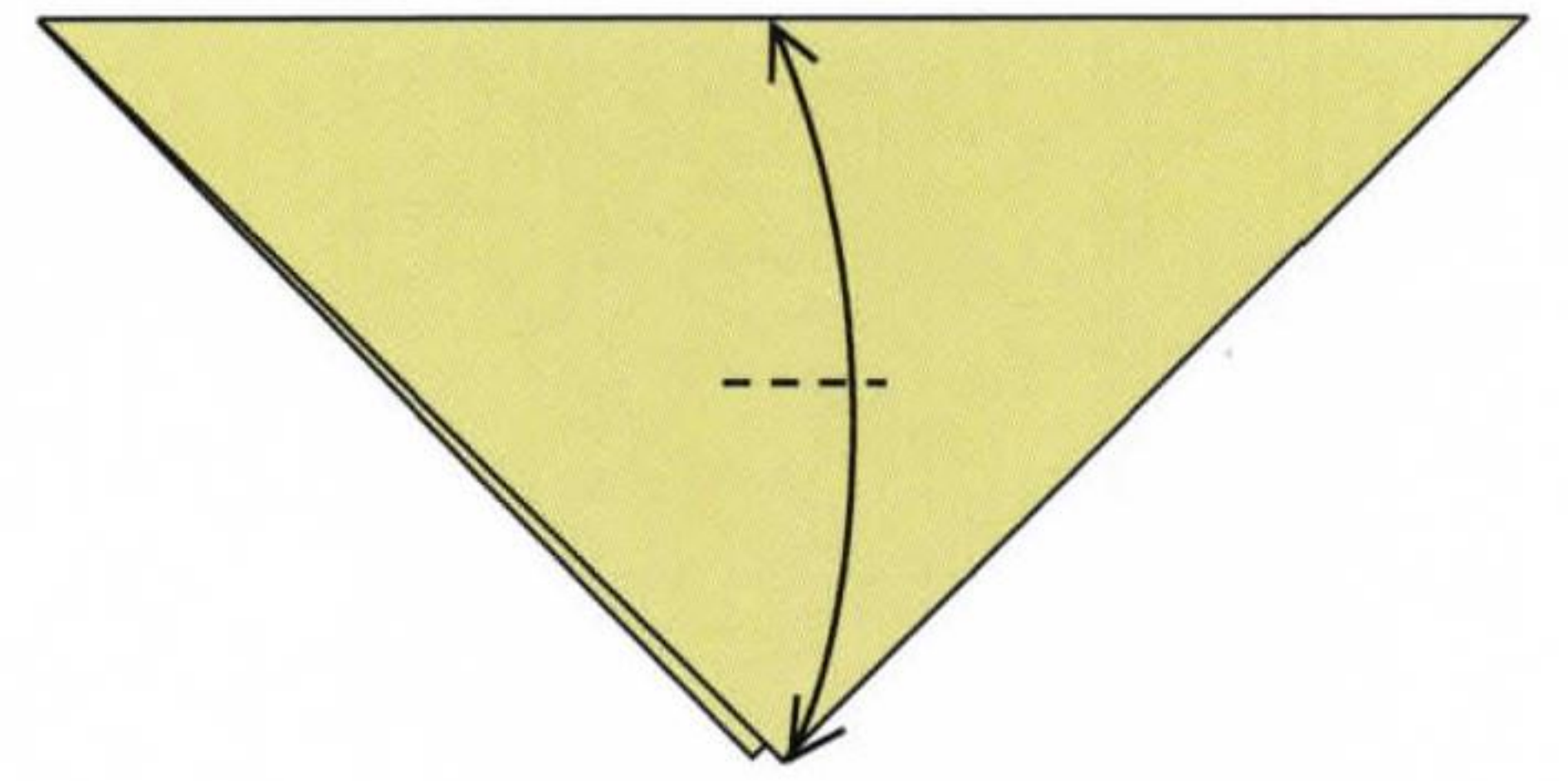
I designed a similar mask during my artist-in-residence experience at the Arizona-Sonora Desert Museum in Tucson, where an actual mountain lion was their early mascot in the 1950s. Another art-residency, this time at the Morikami Museum and Japanese Gardens in Delray, Florida, reunited me with his cousin, the Florida panther. Unfortunately, these cats are gaining increased newspaper publicity because of conflicts with humans as our suburbs encroach on the wild cats' natural habitat. This subject reminds us that we share the planet with other creatures, which deserve our protection and respect. This model also allows us to explore the paper mask, a time-honored and versatile use of paper art. Some say that masks often resemble their folders since we are most familiar with the proportions of the features of our own face.

PAPER SUGGESTIONS

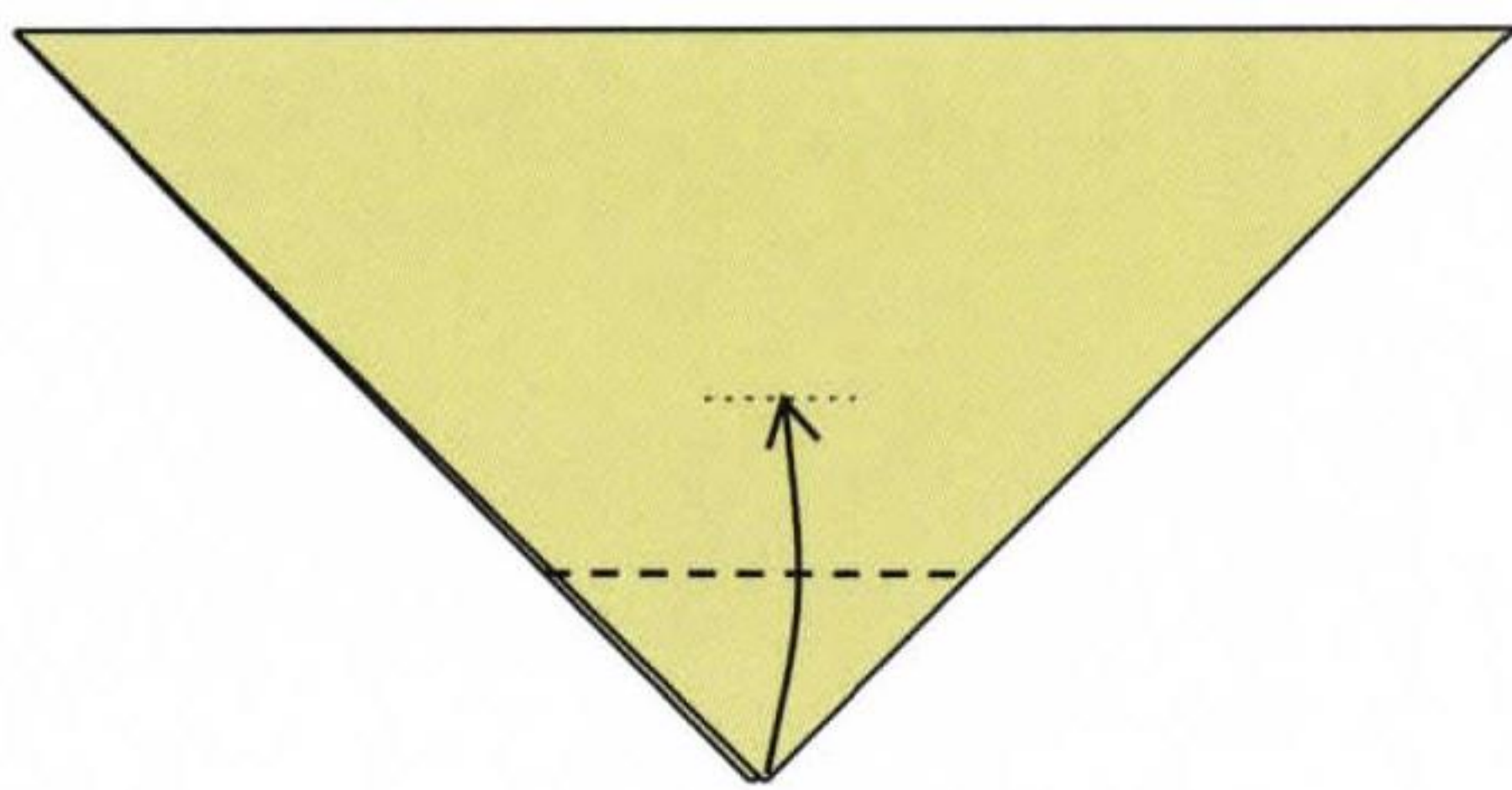
Use a heavy art paper, colored the same on both sides. An 18-inch (46-cm) square will produce a mask 8 inches (20 cm) high.



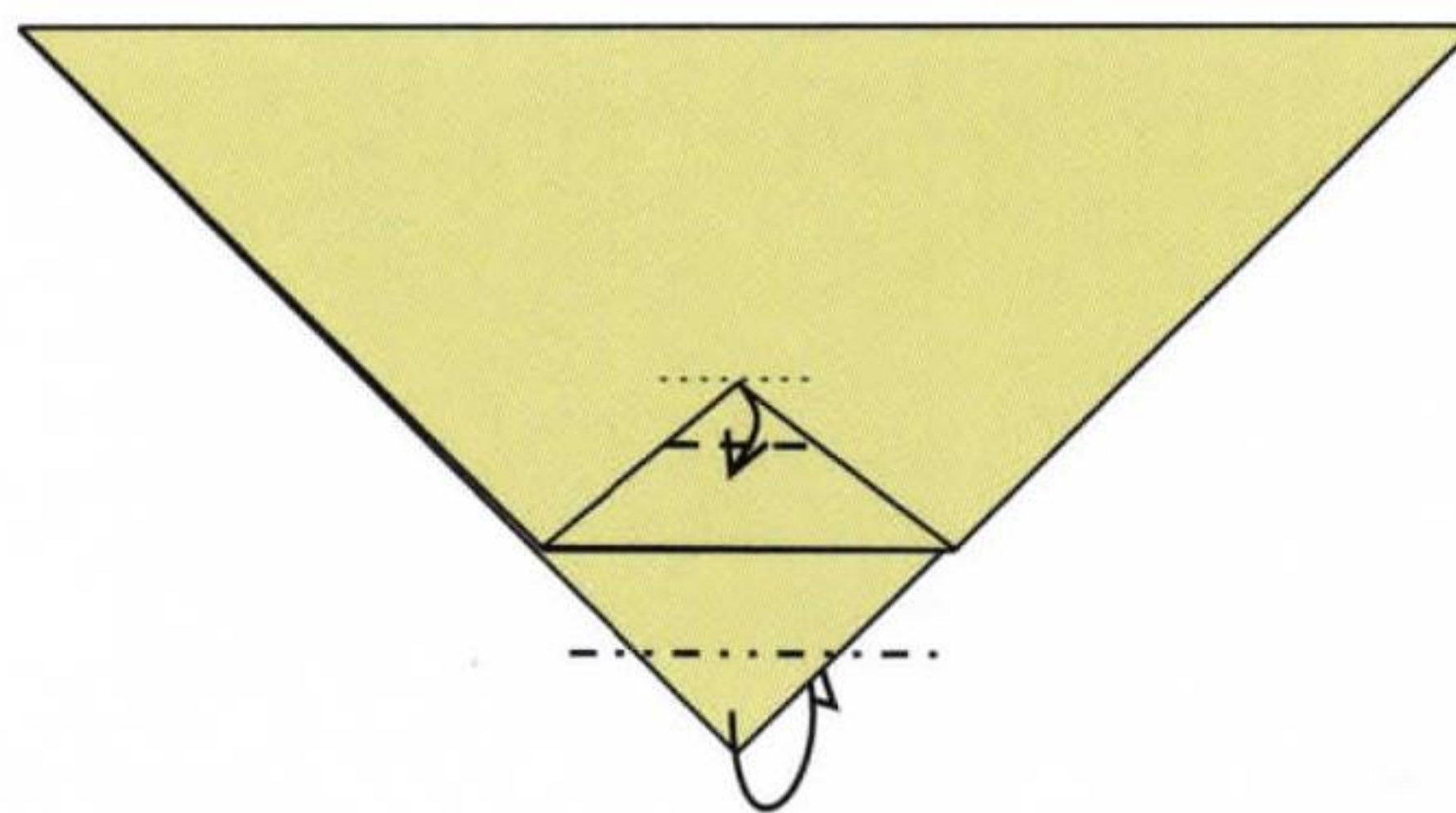
1. Fold in half, corner to corner.



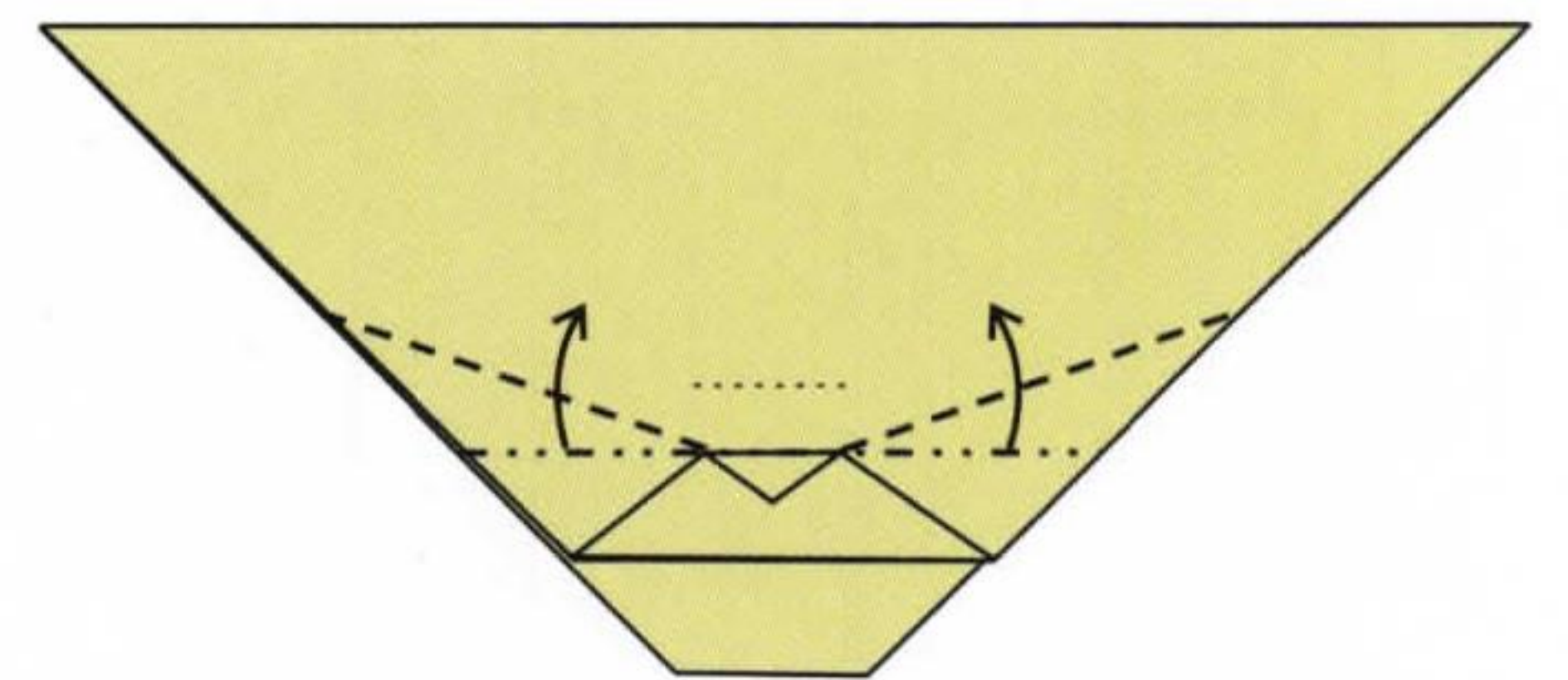
2. Make a pinch mark in the middle of the paper.



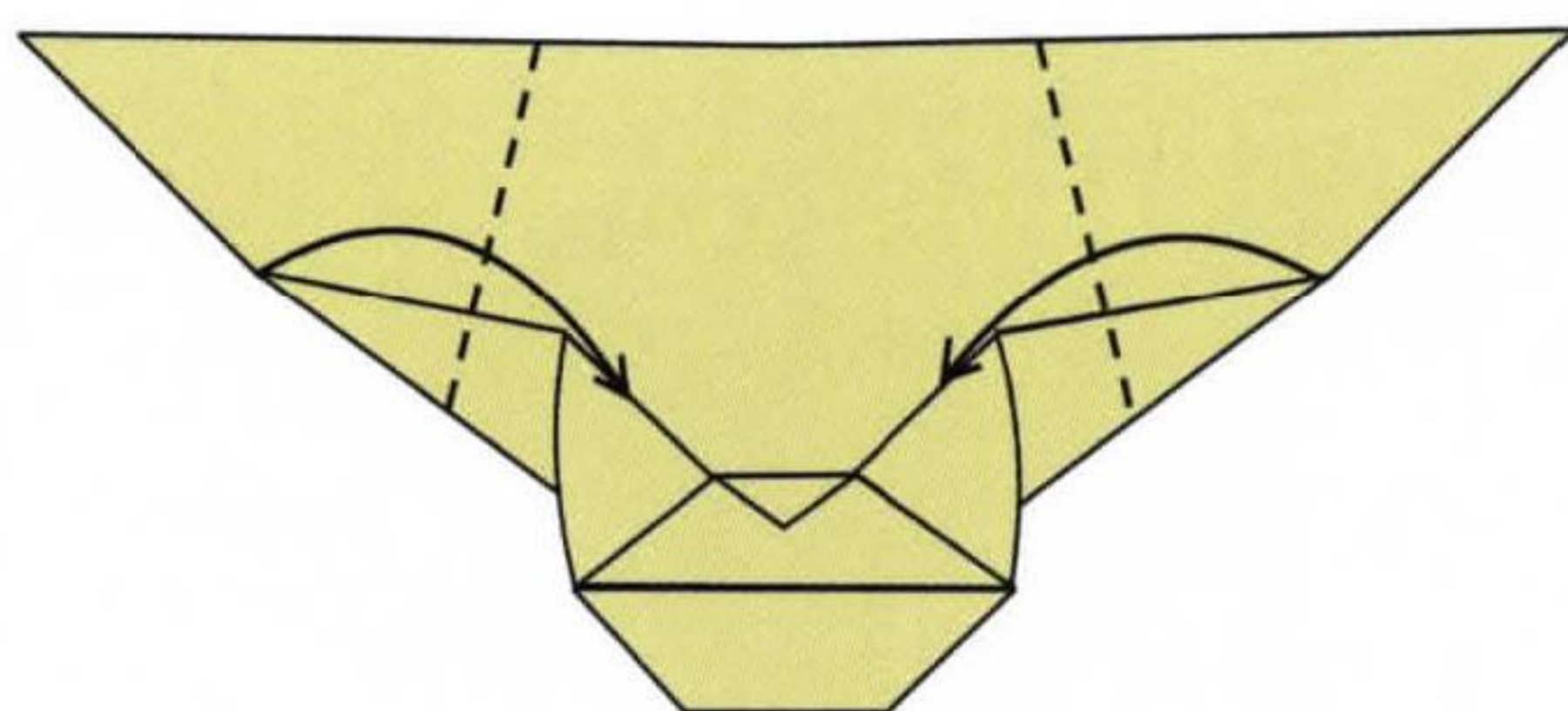
3. Fold the bottom corner of the top layer to the middle of the pinch mark.



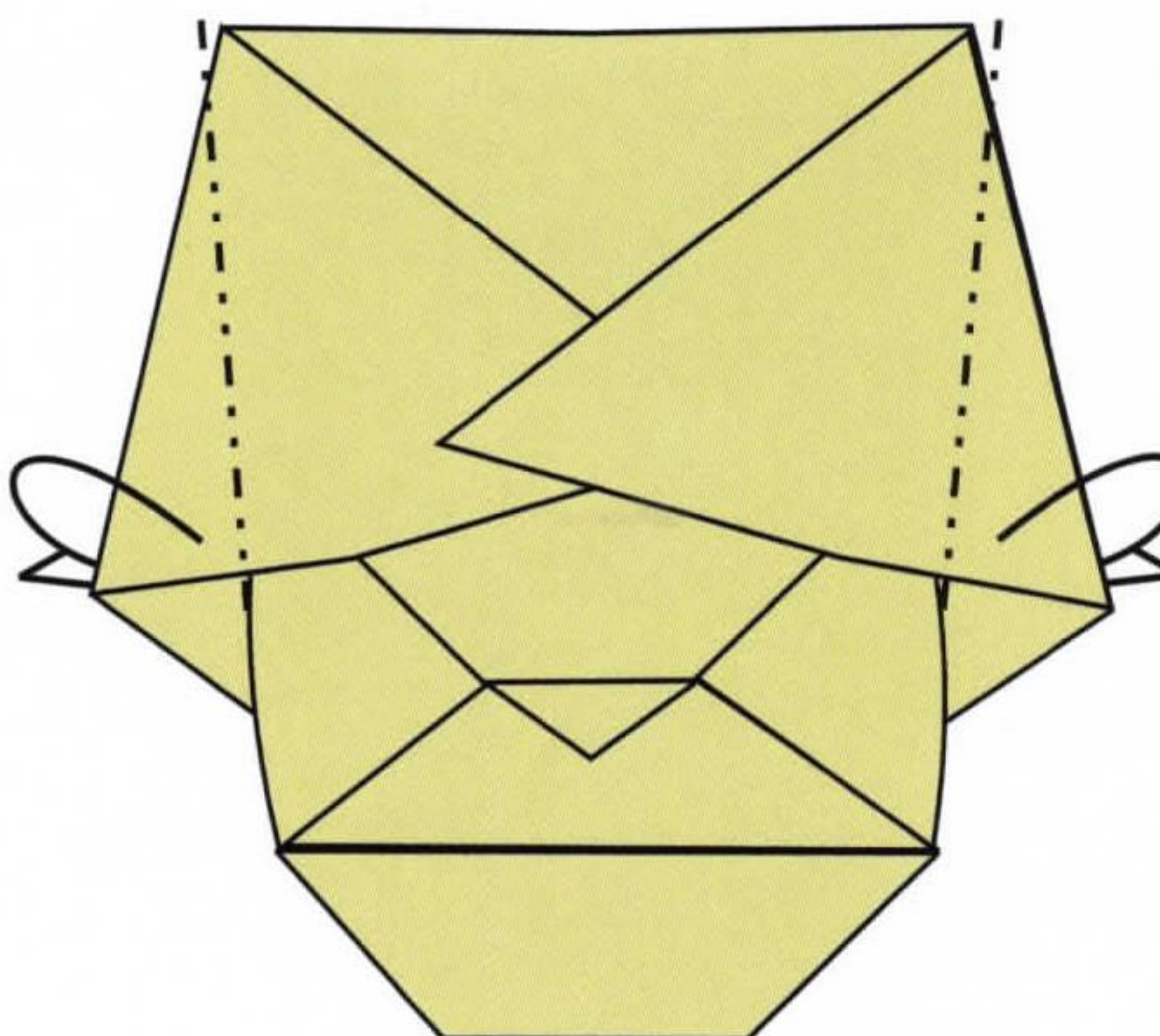
4. Fold the corner down, about one-third. Mountain-fold the bottom corner to the back, displaying an amount equal to the folded shape above it.



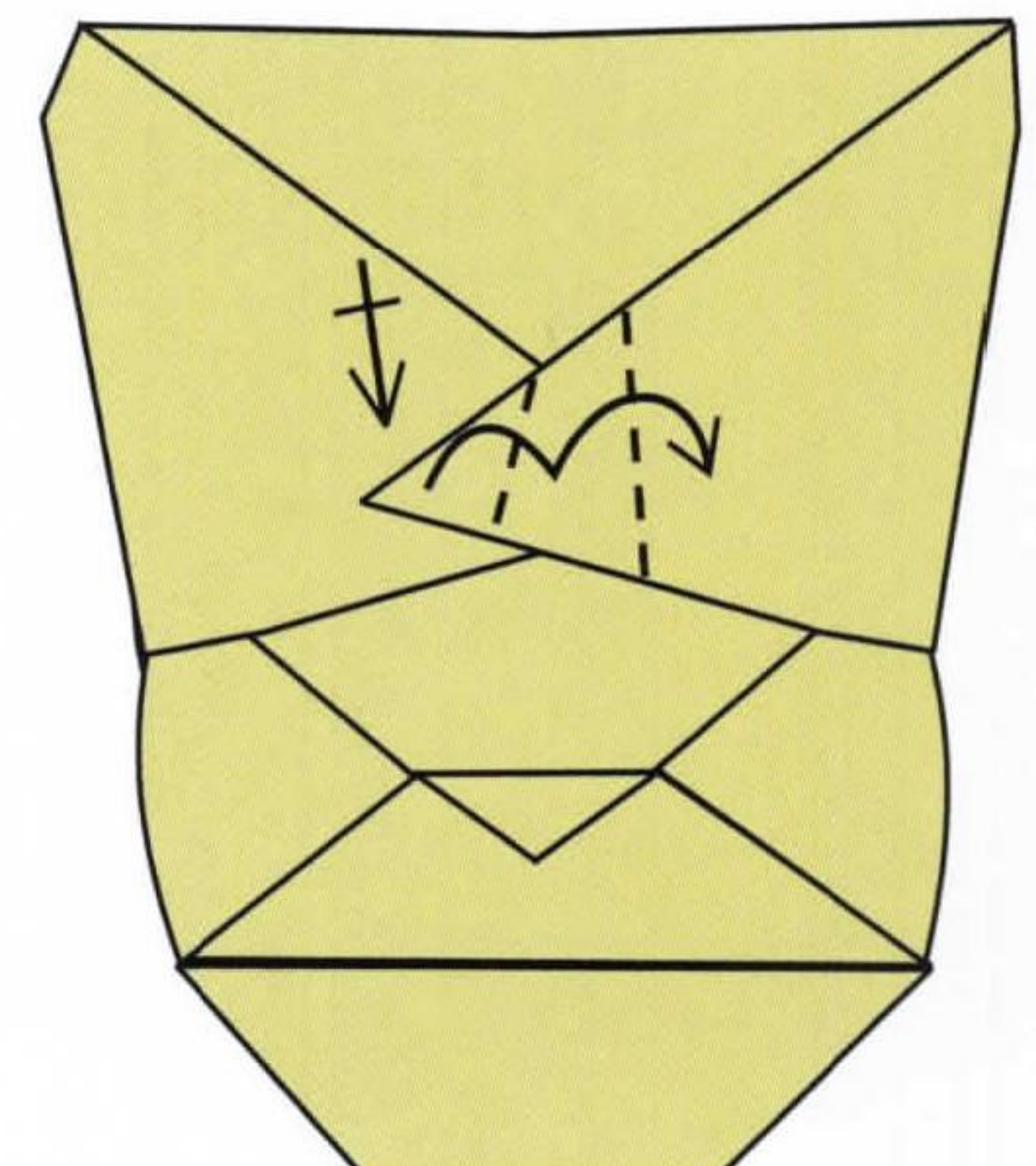
5. Mountain-fold straight across the edge at the top of the nose. Grab a mountain crease edge from one side of the nose and move it higher up the face. Valley-fold. Repeat with the other mountain crease. This will form the muzzle.



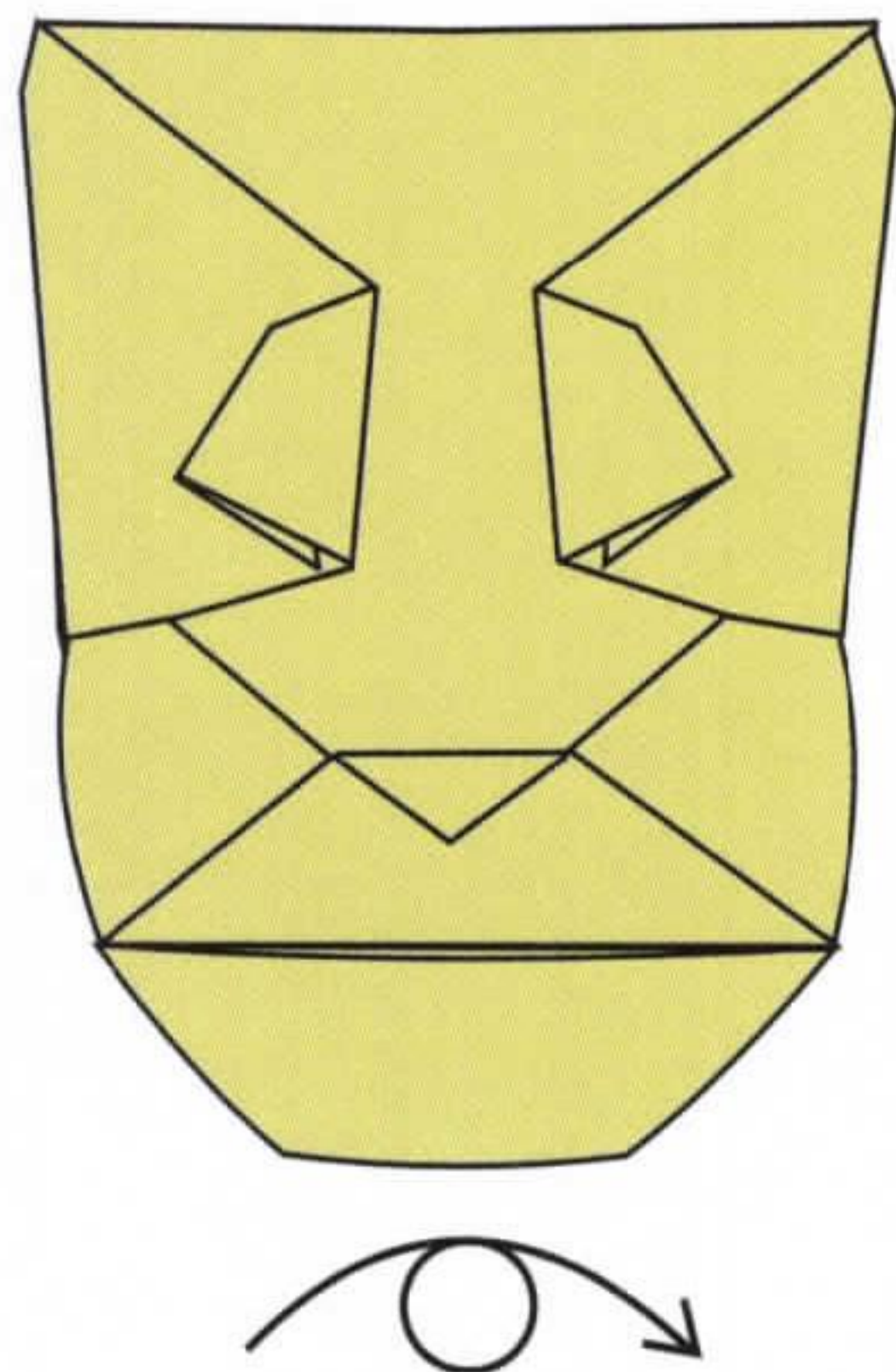
6. Fold the left and right corners over the face. They will cross over each other. Look ahead at the next step for guidance.



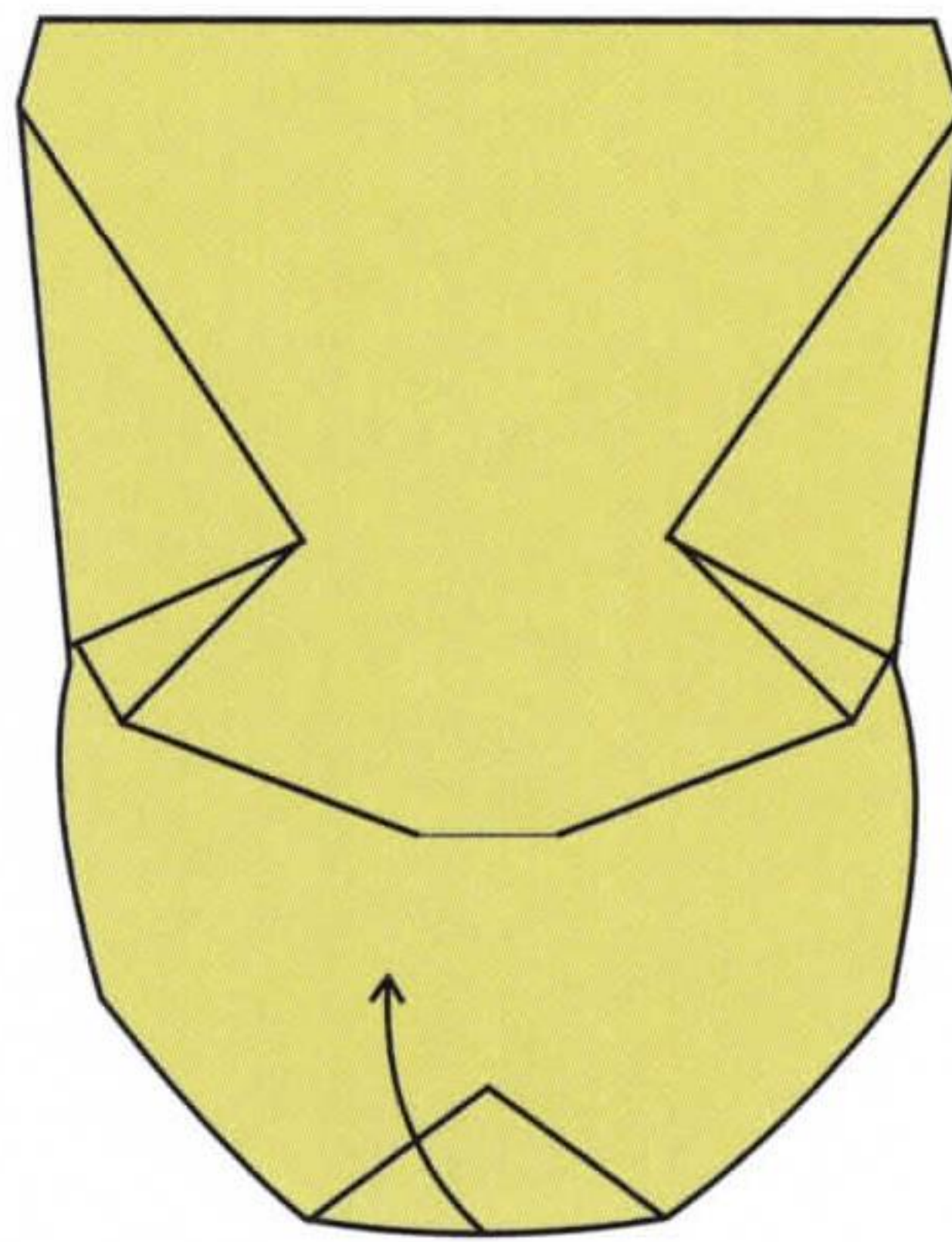
7. Mountain-fold to the back.



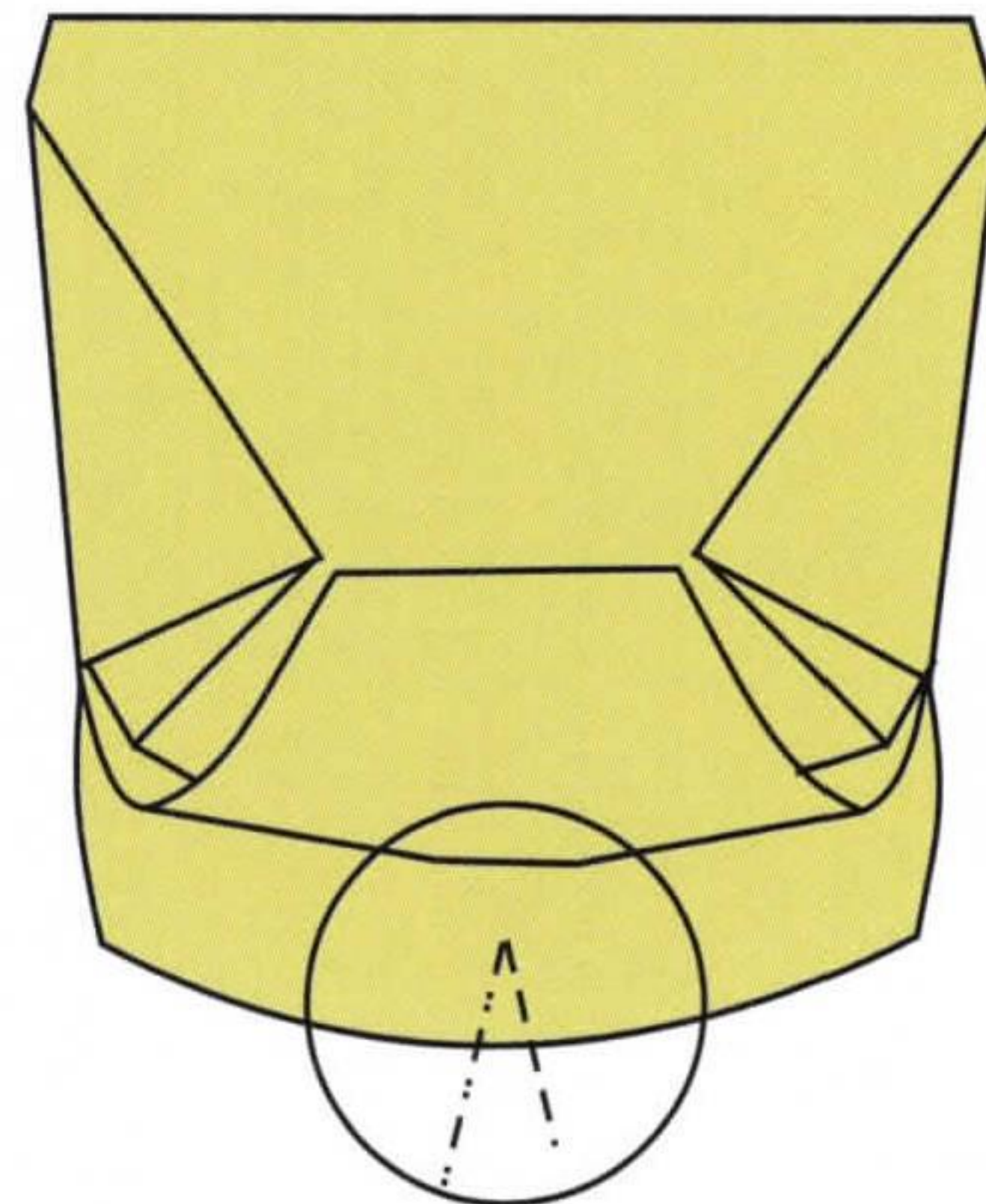
8. Fold the corner over and over for an eye. Repeat with the other corner.



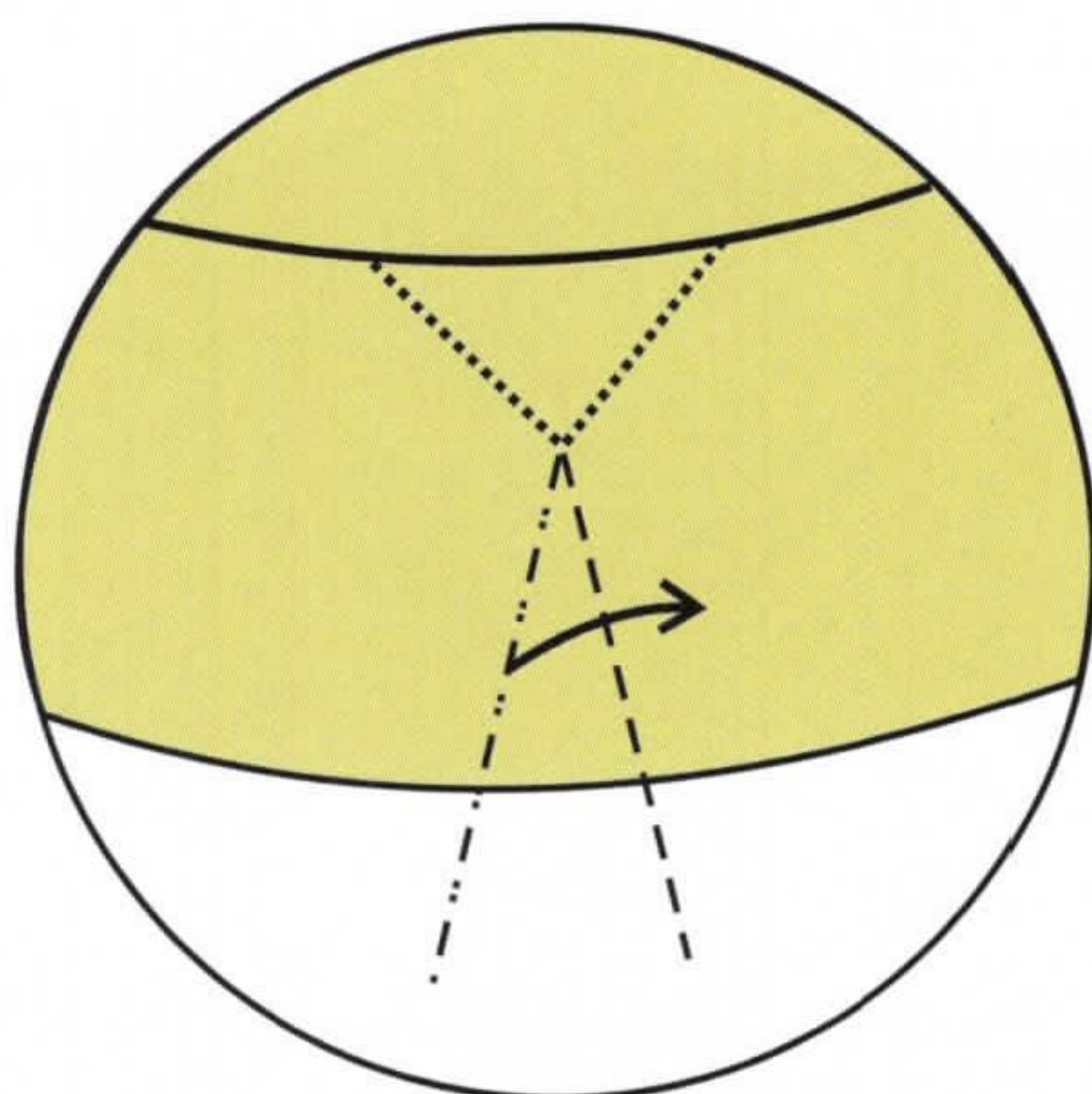
9. Turn the model over, left to right.



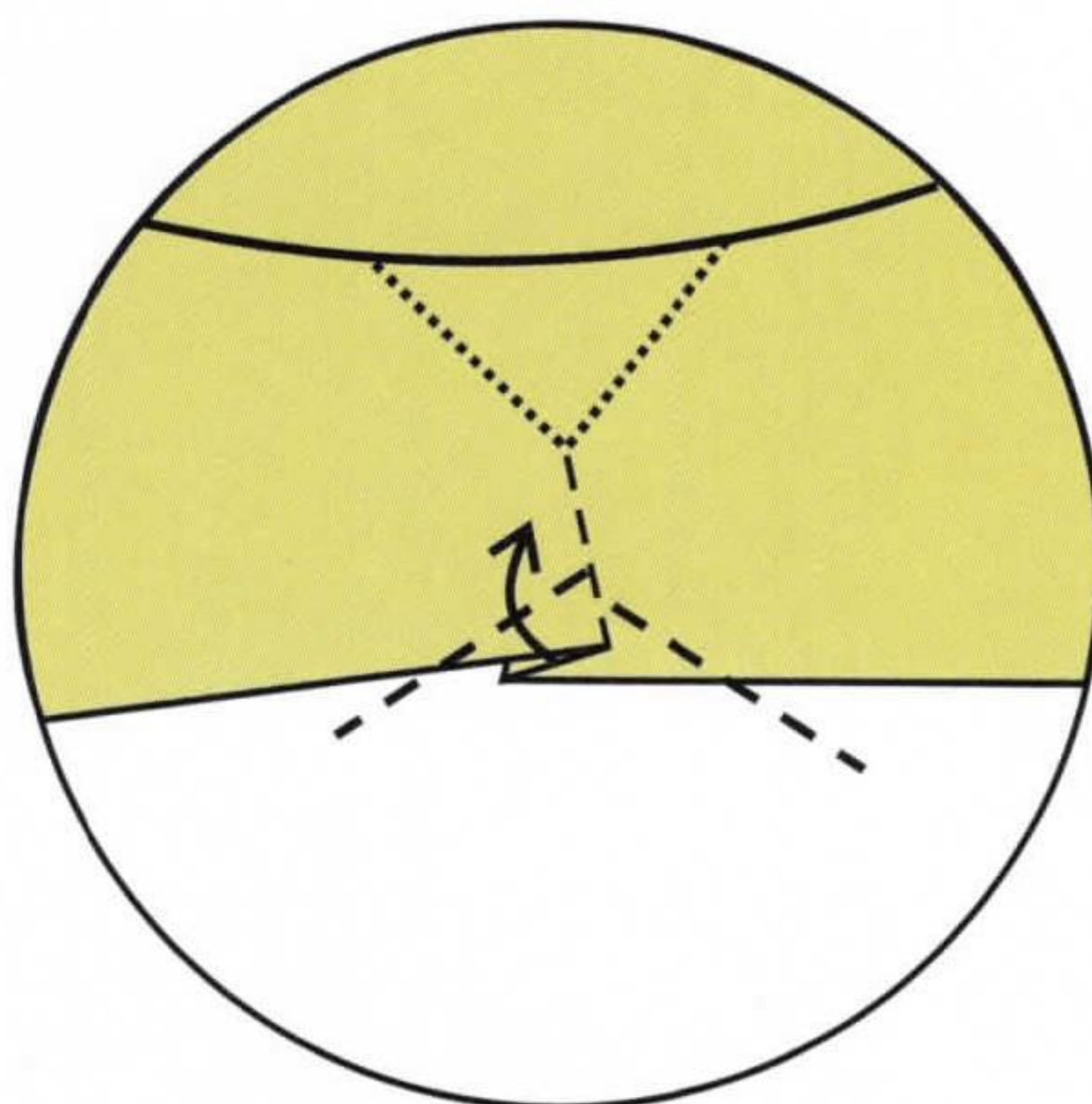
10. Lift up the lower jaw to clear the way for the next step.



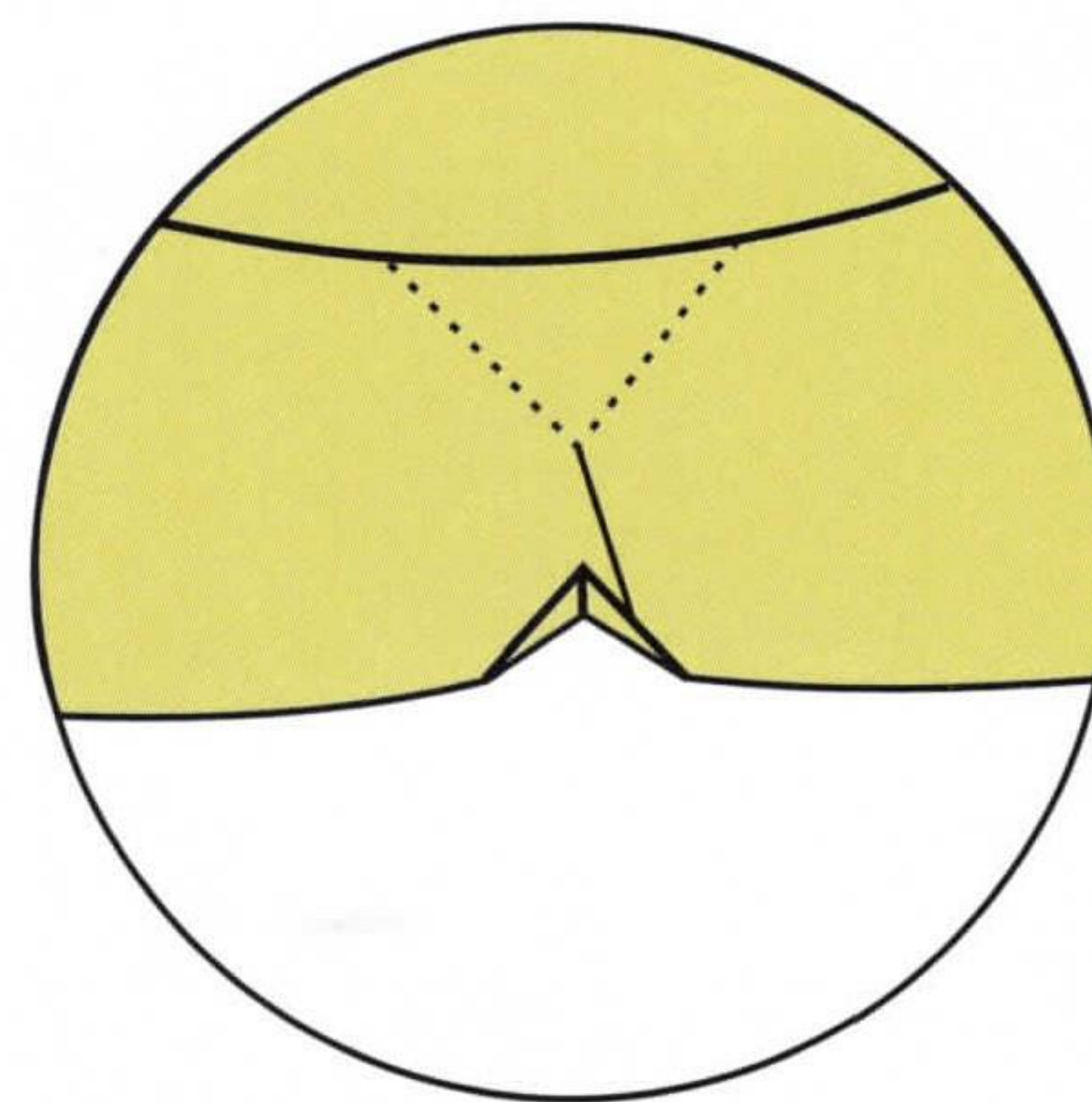
11. Mountain- and valley-fold a dart in the middle of the bottom edge.



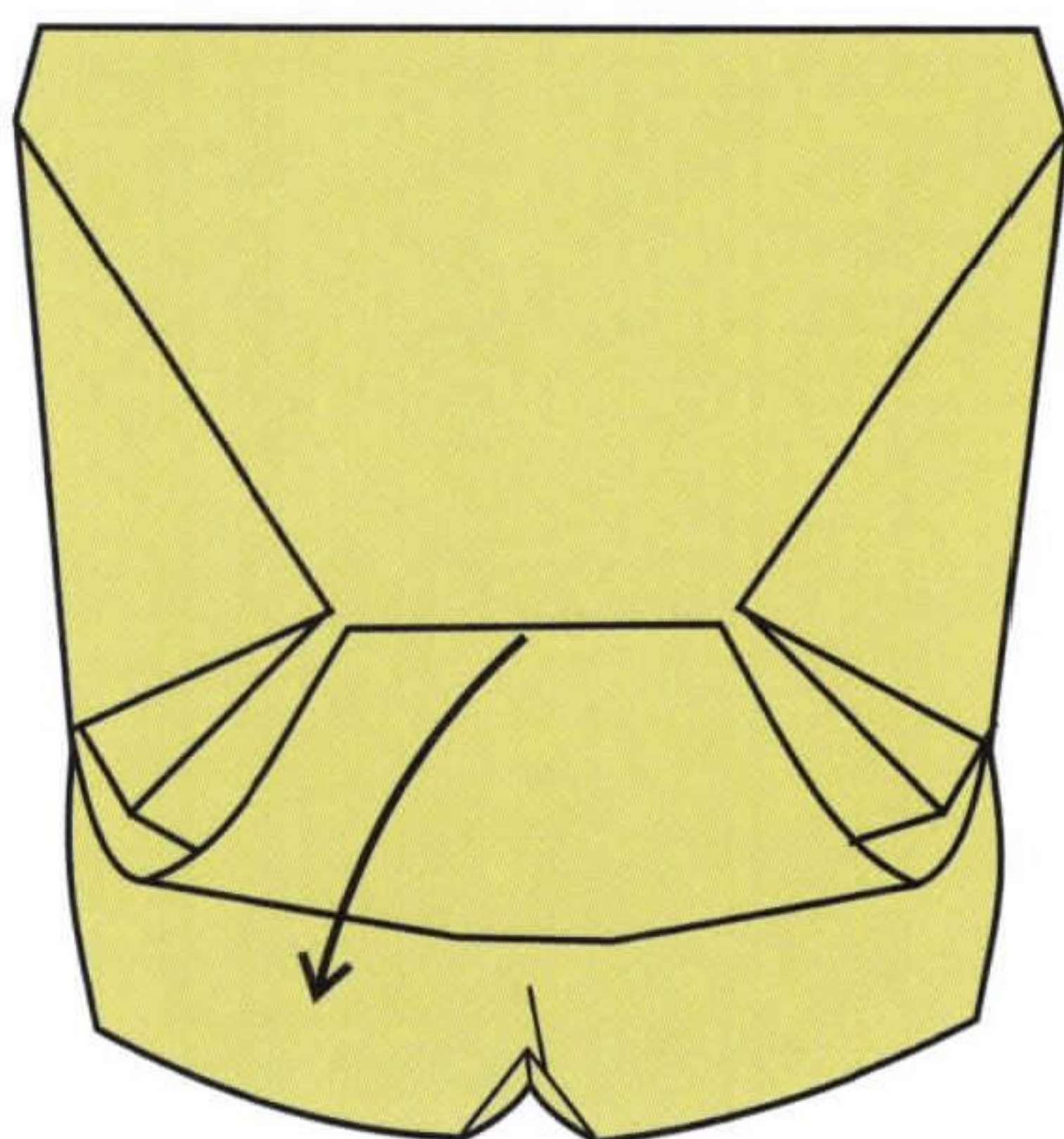
12. Detail. Notice that the top of the dart stops at the X-ray view of the bottom of the nose paper, which is on the other side.



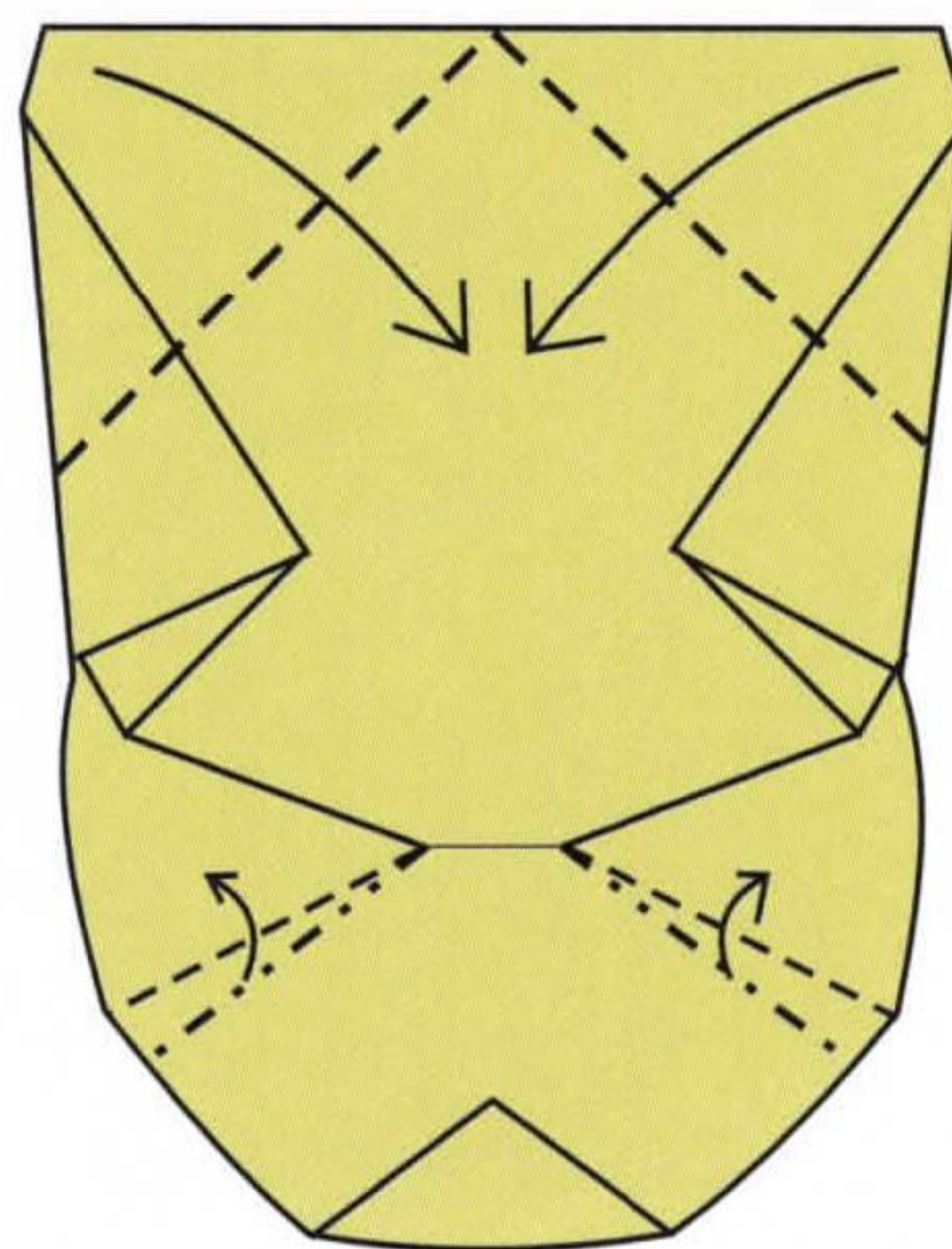
13. Lock and shape the dart by folding the center up, making symmetrical valley folds on each side. This will be the middle of the upper lip.



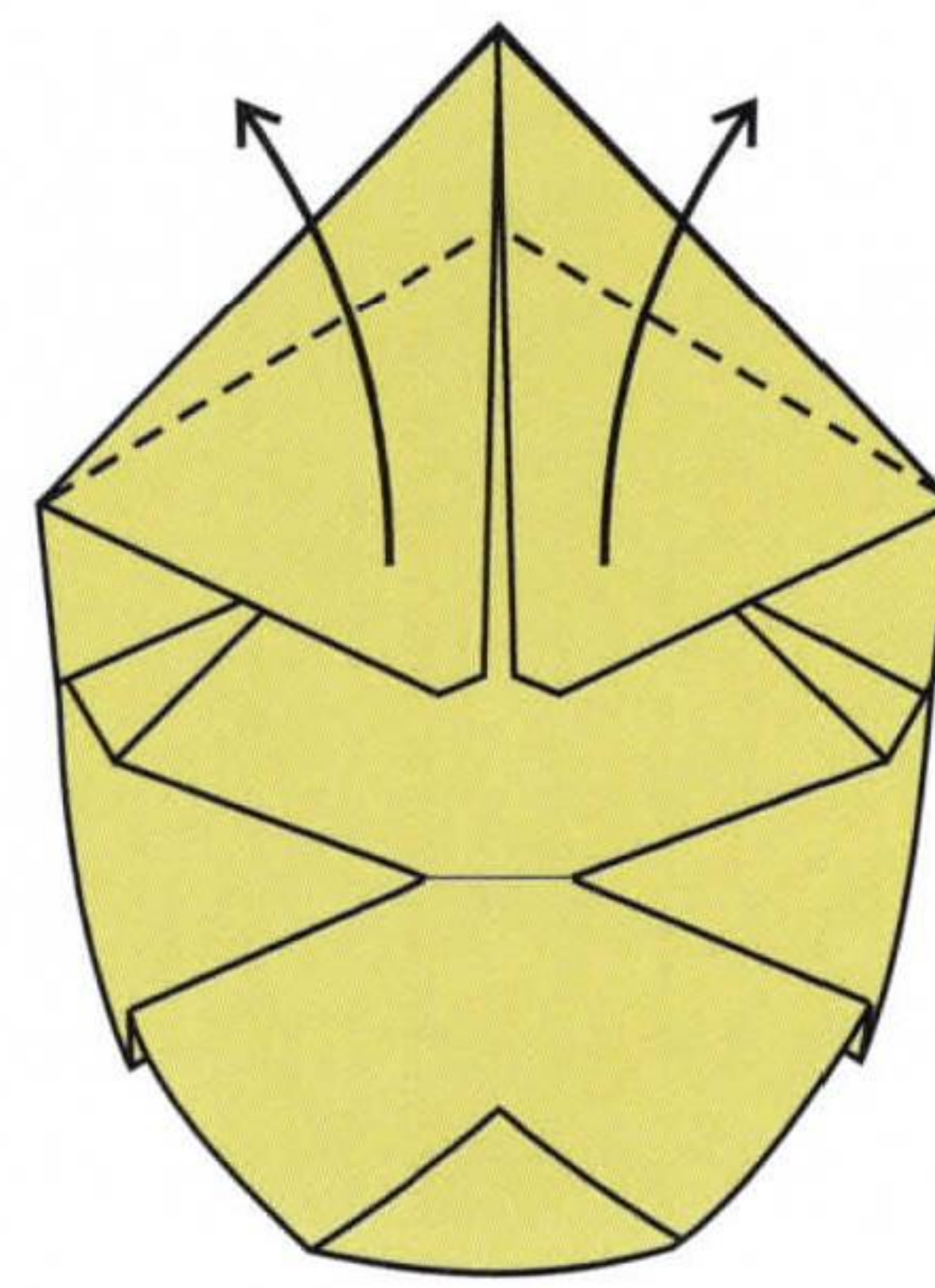
14. The completed lip.



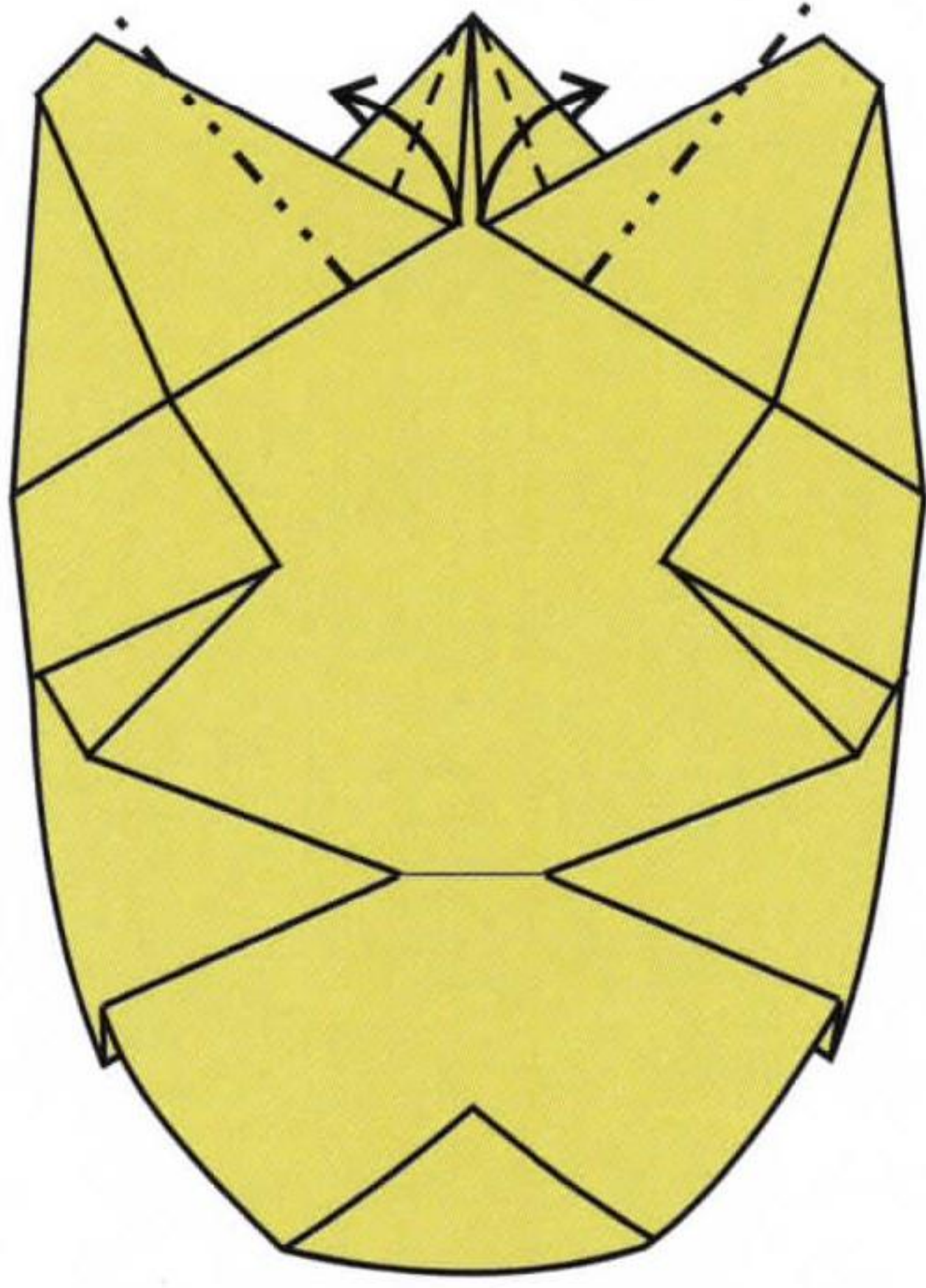
15. Replace the lower jaw.



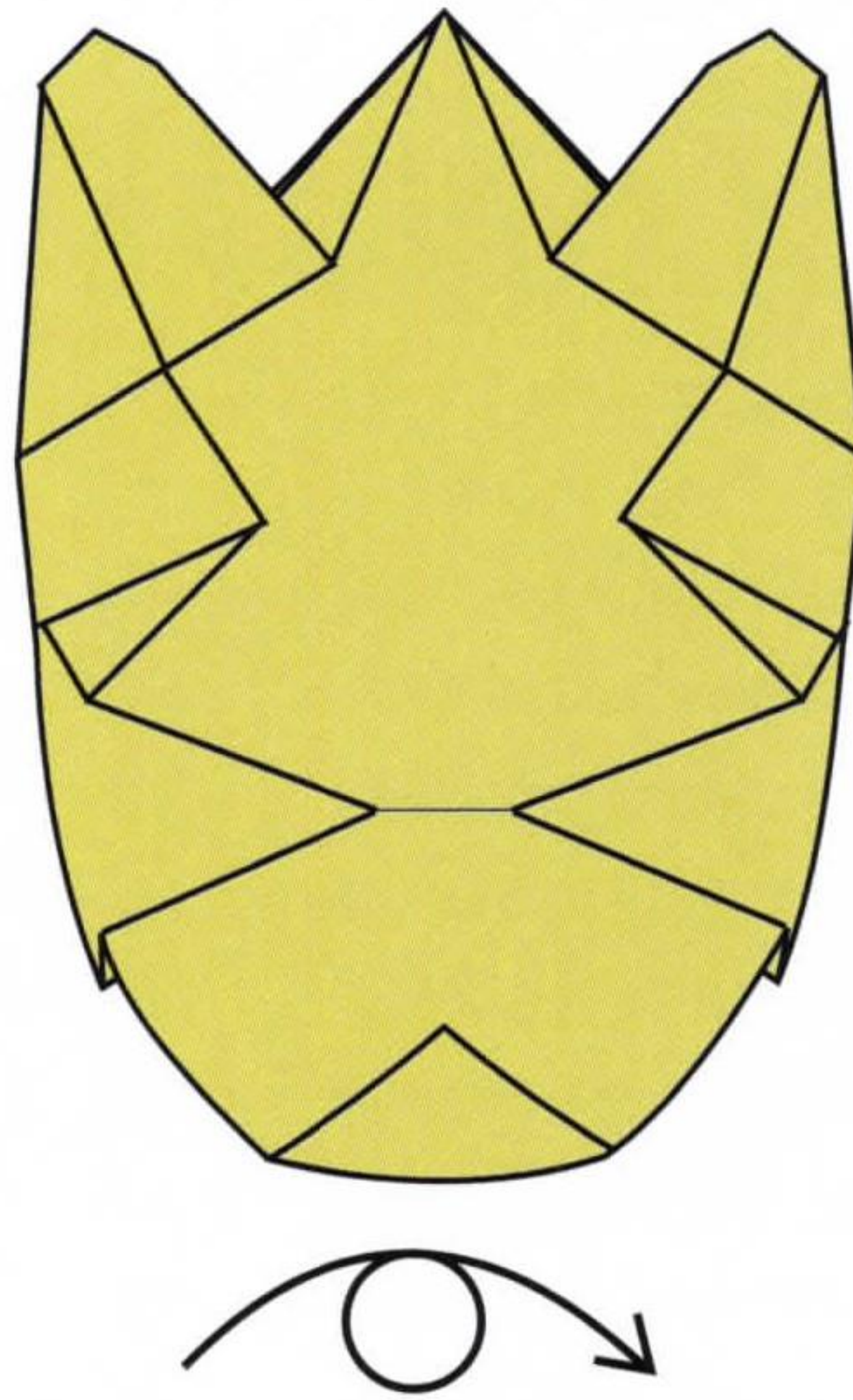
16. Fold the top corners down, forming a point in the top center. Mountain- and valley-fold the left and right sides of the lower jaw.



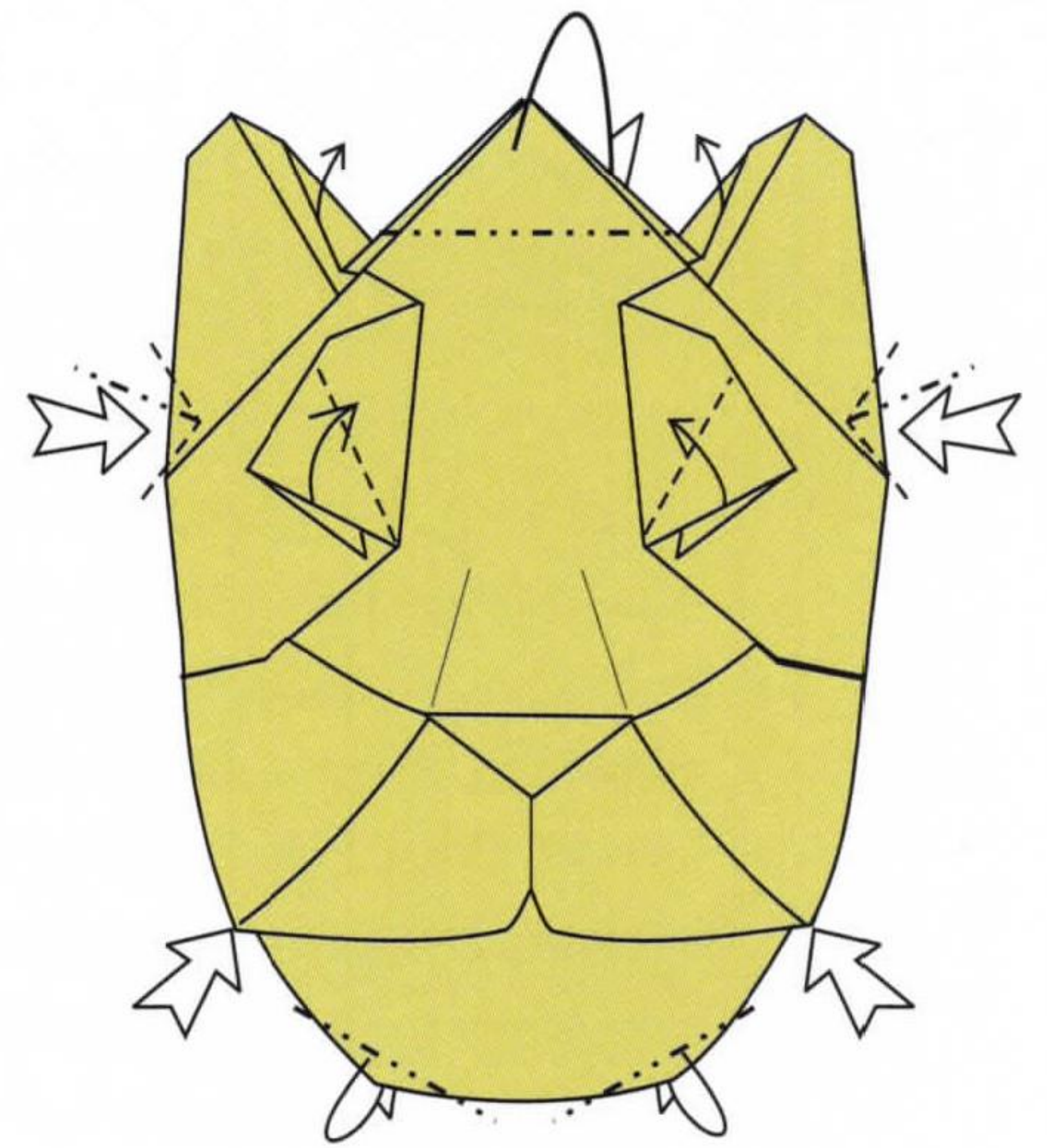
17. Fold the points out for the ears.



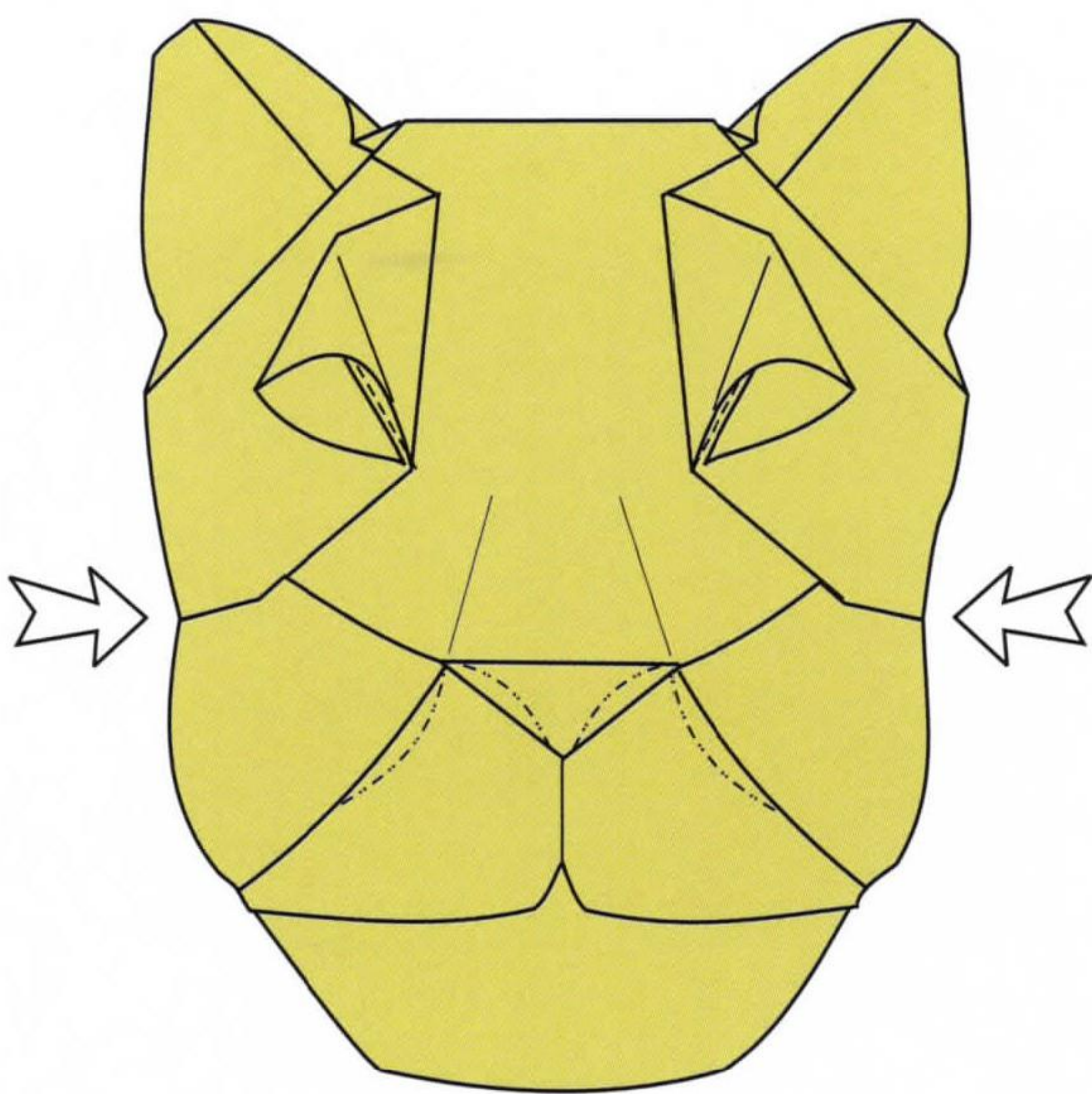
18. Inside-reverse-fold the top of each ear.



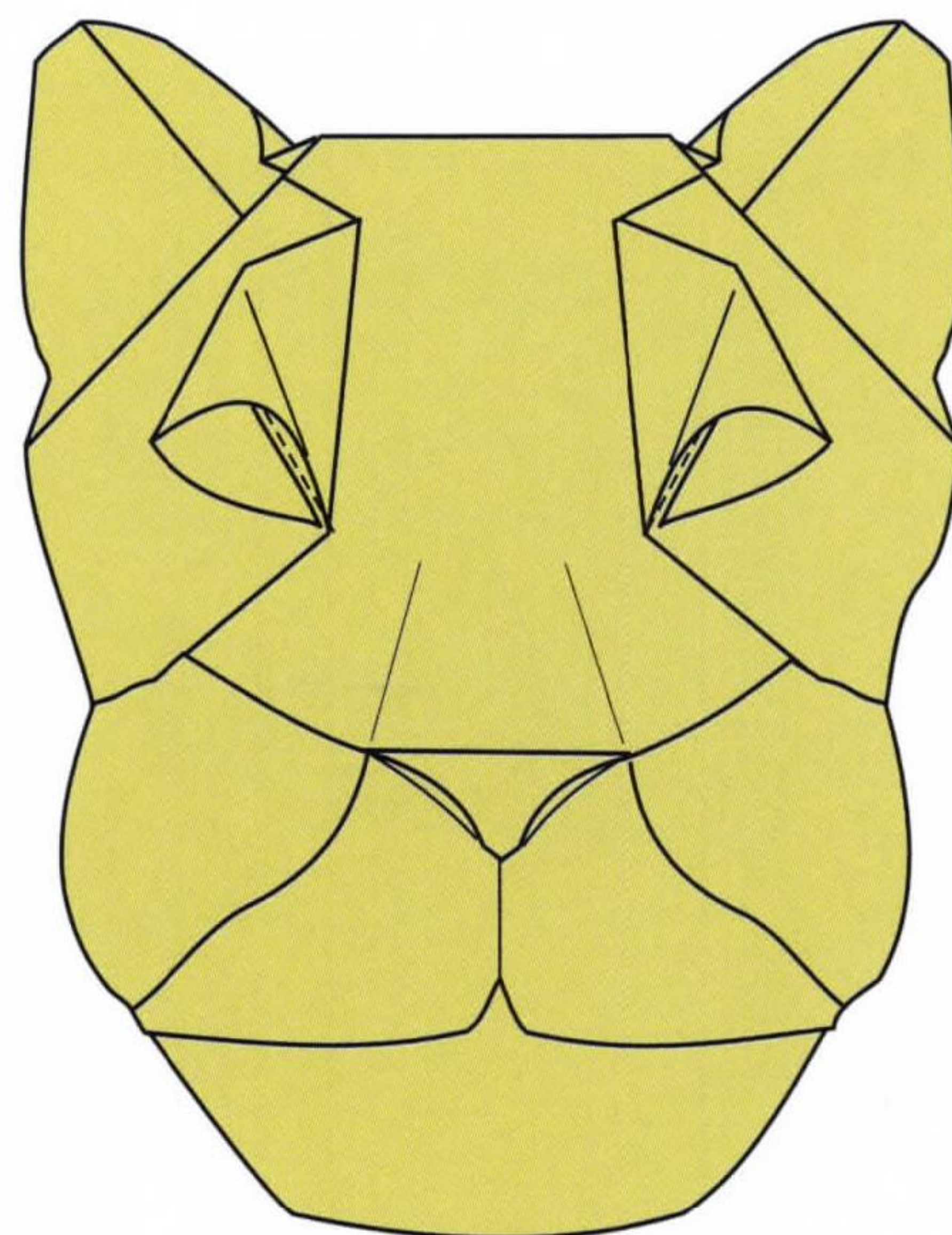
19. Turn the model over, left to right.



20. Fold the top point behind. Crimp in the bottom of the ears. Open the eyes. Round and shape the sides of the mouth and the bottom of the chin.



21. Apply curved folds to the nostrils and muzzle. Push in the sides of face to accentuate the muzzle.



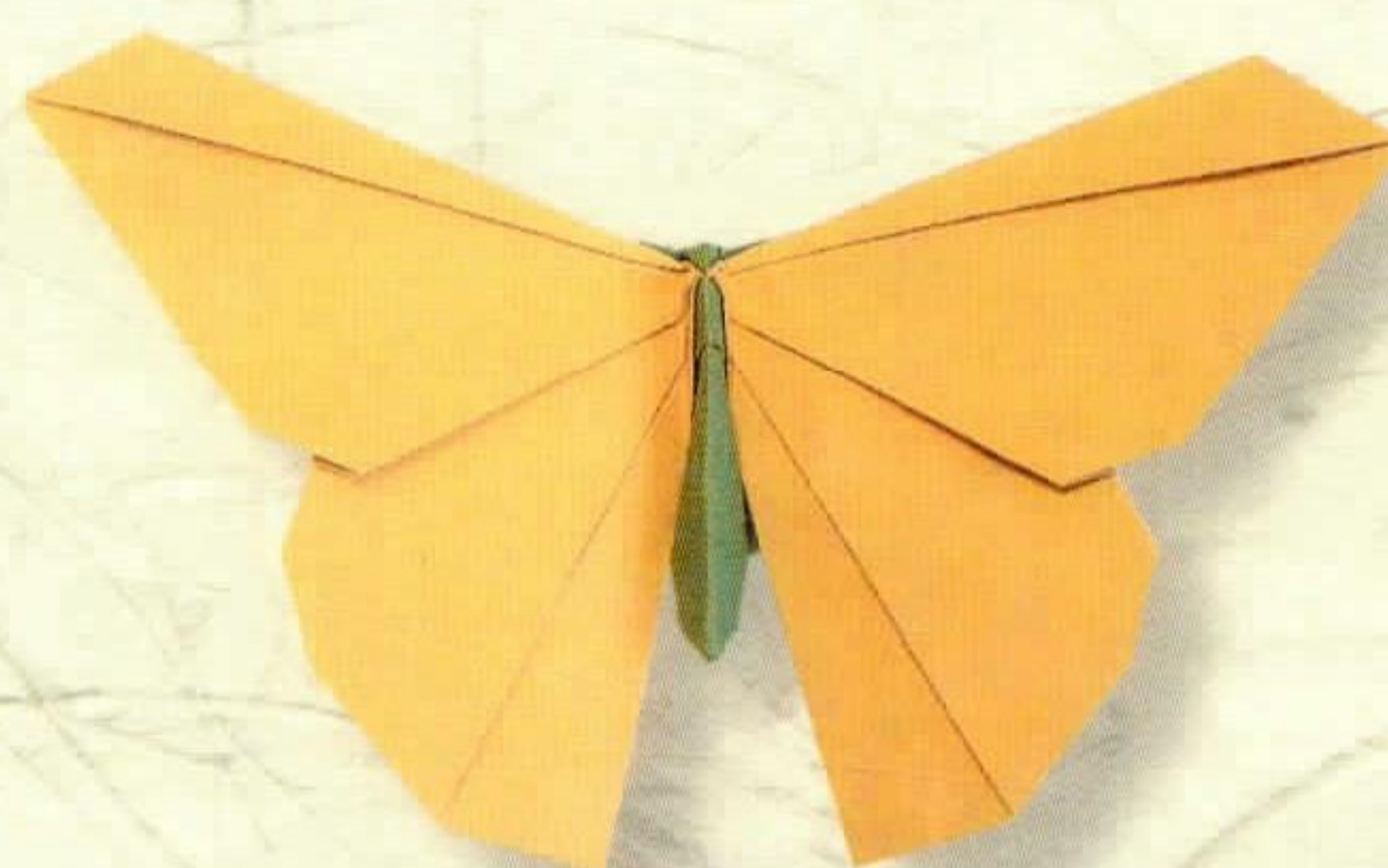
22. The finished Panther Mask.



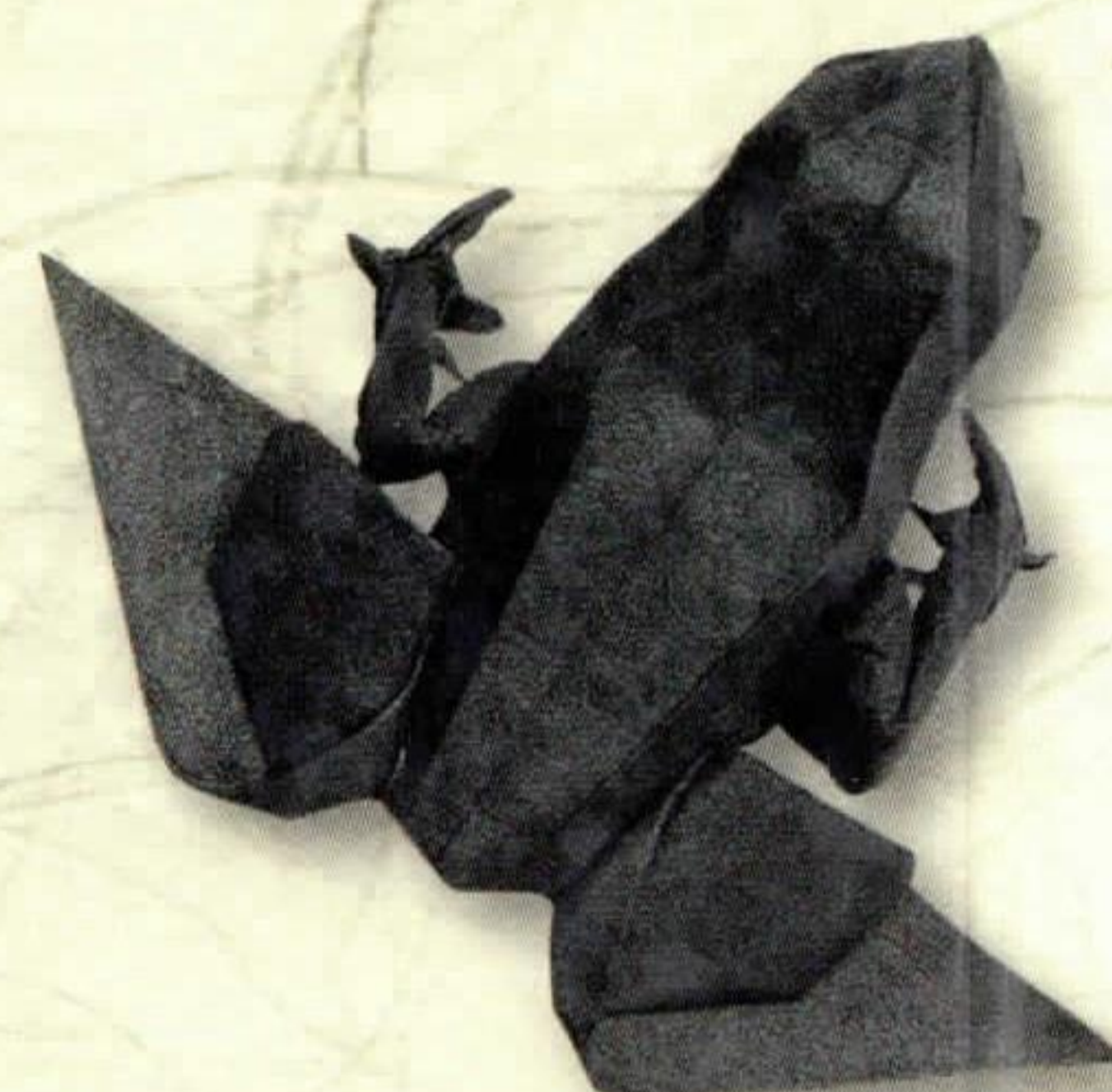
Cattleya Orchid



Squirrel



Origamido Butterfly



Frog

"LaFosse displays a depth of artistry with his masterful folds and complementary methods to prepare the perfect piece of paper."

—MARC KIRSCHENBAUM, author of *Creative Origami Kit* and *Color Origami: Botanica*

"This classic work blends elegant design with stunning execution and clear, detailed instructions. Every origami artist should have this in their library."

—ROBERT J. LANG, author of *Origami Design Secrets* and co-author of *Folding Paper*

"A must-have addition to any origami enthusiast's bookshelf."

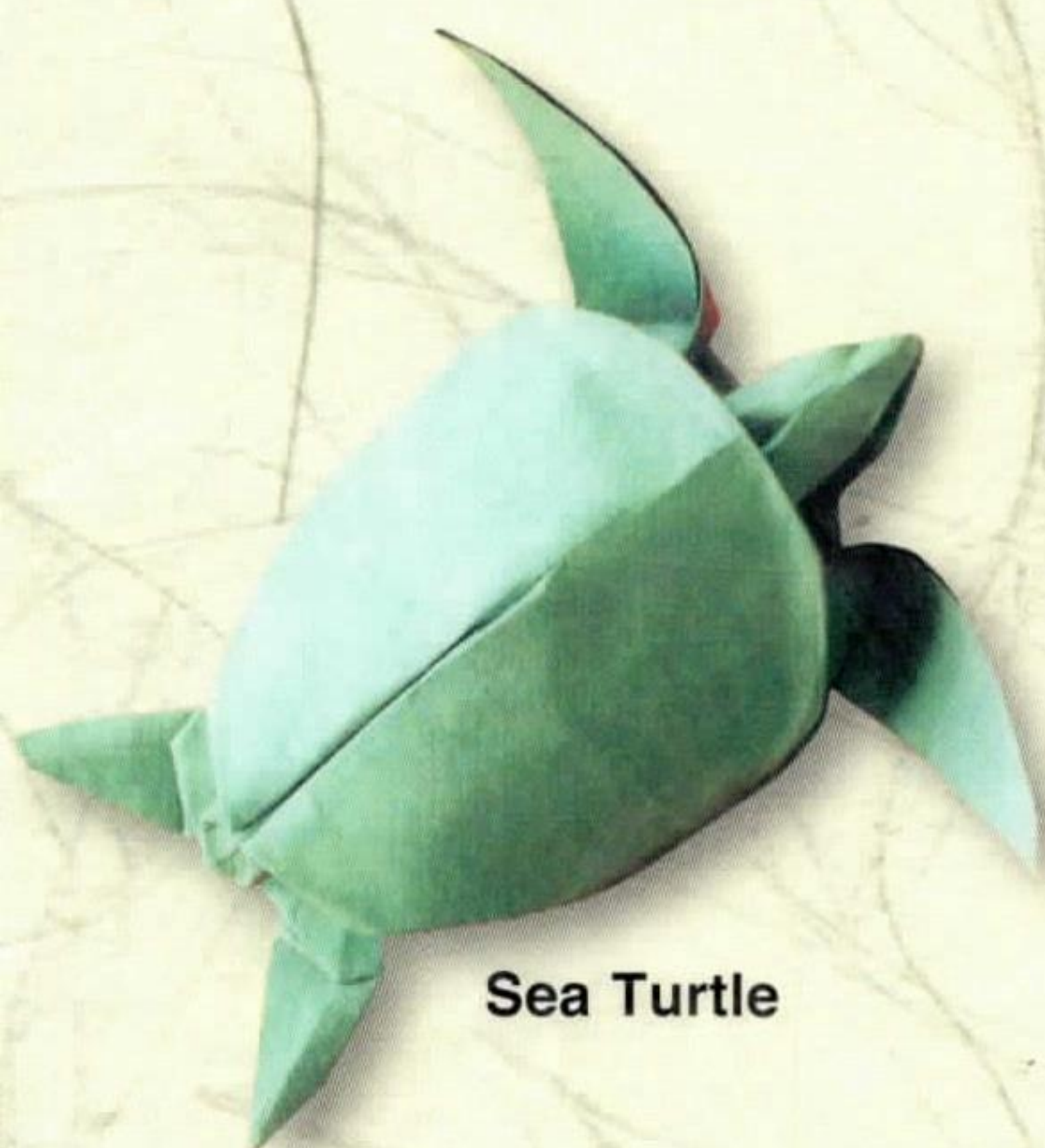
—WON PARK, author of *Dollar Origami* and *Dollar Battle-Gami*

"Michael and Richard are masters of this beautiful and timeless art form. I love the passion and joy for origami that they convey in this original and inspirational book."

—SOK SONG, author of *Crease + Fold* and *Origami Chic*

Michael G. LaFosse's elegant origami models are artistically challenging and rich with personality. This book presents fifteen fully diagrammed projects. Rare video segments of LaFosse folding these signature pieces demonstrate the advanced techniques required.

LaFosse also provides priceless tips on advanced folding techniques, advice on choosing the right paper and recipes for making handmade paper. His enthusiasm and excitement for the art of paper folding are contagious! The result is an elegant celebration of the art of paper folding.



Sea Turtle



Toco Toucan



North American Cardinal



Big Brown Bat



Goldfish

TUTTLE

www.tuttlepublishing.com

Printed in China

ISBN 978-0-8048-4807-7



9 780804 848077 US \$18.95